

The GUIDANCE of LEARNING ACTIVITIES

A SUMMARY OF THE PRINCIPLES OF TEACHING
AS BASED UPON THE PRINCIPLES OF LEARNING

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TO

VIRGINIA NOTTINGHAM BURTON

Preface

The general principles of teaching offered for the guidance of teachers are summarized ordinarily in either one of two broad general schemes: the traditional assign-study-recite-test procedure, or the more recently developed unitary organization. Texts in this field usually present one or the other, with adequate cross-reference between the two practically non-existent. The present volume develops for each of the two procedures the most adequate treatment that the author could devise. There are definite reasons for this double presentation. *First*, the prevalence of "either-or" thinking in this area has obscured some of the issues. One of these procedures is not wholly wrong and the other wholly correct; each has a place and function. The sterility, the formalization, and the crude stupidity of the assign-study-recite-test formula as operated in many places, its use on levels where it can never fit, has led to sweeping condemnations. The freshness, the vividness, and the obvious adaptation to children's needs and abilities of the unit organization in the hands of good teachers has led to equally uncritical acceptance. The fact is overlooked that the assign-study-recite-test procedure can be operated in vivid and provocative manner by skilful teachers; that the unit in the hands of poor organizers can become aimless and wasteful. So far we have a situation which has been true historically of all educational processes: condemnation or acceptance of the whole because of errors or values which are not necessarily inherent and constant. This type of discussion should be avoided.

Second, and most vital for all teachers and for the conduct of educational enterprises, the general principles of teaching to be used are affected basically by the aim of the given type of education and by the level of maturity among the learners. A summary statement will suffice here, since detailed background is developed throughout the volume. *The education of little children, of beginners on almost any level, and in the area of general education, will proceed best as the most effective types of functional or experience units are utilized by teachers. The assign-study-recite-test procedure would seem, however, to be legitimate and useful as students attain more maturity, become able to learn through abstractions, and enter upon areas of specialization.*

The arguments from philosophy, the demands of democracy, the evidence from psychology and from educational research support the divi-

sion just made. The assign-study-recite-test procedure, no matter how improved or skilfully operated, can never achieve certain desired results in the area of elementary education nor in general education ordinarily. Teachers in these areas who resist new methods and who claim to secure "just as good" results through the older procedure merely indicate their ignorance not only of modern research upon learning and teaching, but of results they themselves are achieving. The unit procedure may not necessarily be the most economical upon upper levels and with mature learners, though some leaders do look forward to this extension of use. Students beginning to specialize bring a continuing purpose with them; they have achieved many of the understandings, attitudes, and skills necessary for independent study. Students on this level can accept an already organized field and learn within it, something difficult if not actually impossible with little children. Learning under assignment is not merely possible on this level, it is probably more economical.

The statements just made must not be construed as a defense of typical, traditional methods as commonly used, particularly in high schools. Typical traditional methods are as a rule mediocre or worse, in a huge number of instances genuinely atrocious, clearly interfering with the normal processes of learning. The emphasis here is first upon understanding the proper use of traditional methods, and second upon the possibility and necessity of improvement. Traditional methods as commonly operated in secondary schools are susceptible to literally enormous improvement.

A *third* reason for including the two procedures in one volume is a limited practical one. Many teachers, for reasons usually beyond their control, must use the traditional methods on levels and in areas where they actually should not be used. The existing situation must be met by bringing to teachers the best that is known about the older procedures. Not only can the operation of the basic elements be improved, and the subsidiary techniques made more varied, but many of the techniques of the newer organization can be used within the older process. School administrators and teachers in increasing number are being led to modern methods through efforts to improve the old. Conscientious study and effort to adjust the assignment procedure to the needs, purposes, and abilities of children leads many teachers straight into acceptance of modern methods.

The plan and organization of this volume illustrate, it is hoped, the principles presented within it. The student's experience, present knowledge, and interests constitute the starting-point. Examination of one's own naive and incomplete knowledge raises questions. The organized knowledge in the field, including scientific research and democratic philosophy, are introduced in answer to problems raised. A few critics insist that students be introduced directly to, and trained by means of, the

systematic organized body of material in the field. The writer believes this to be futile with young, immature, inexperienced students. The scientific and philosophic background, sadly lacking in so many practical teachers, must certainly be introduced but is best introduced when needed. An orderly and systematic view of the field must be eventually the possession of any teacher who wishes to be competent. The mature, systematic organization will be achieved and understood better if developed by the student than if imposed upon him. Older students possessing adequate background of experience and study may proceed more directly to study of the systematized information.

The style of writing is directed to students, not to mature scholars in the field. Simple, practical exposition has been the aim, but, it is hoped, with no sacrifice of standards of taste and style.

The term "learning process" refers always to the outward, observable, and describable activities through which pupils go when engaged in learning. The term does not refer to the inner learning processes which are the object of study by psychologists. The term "learning activity" has been used in place of "process" wherever possible.

The author has made every effort to avoid inconsistencies and errors of fact. Reviewers, it is hoped, will not find serious mistakes. Certain reviewers will criticize the omission from the body of the text of long extracts, tables, and graphs taken from basic research studies. The writer believes such material to be useless with beginning students and has preferred to describe the research findings in simple language and to relate them directly to simple, practical problems confronting students and teachers. The extensive and basic research material is faithfully footnoted throughout the volume. The size and coverage of the book will be criticized as "encyclopedic" by a given group which applies this term widely and somewhat indiscriminately in its reviews. The criticism is cheerfully acknowledged and its implications denied. The scope has been determined by dire necessity. Students arriving in the writer's classes in principles of teaching possess but a slight fraction of the necessary background material; hence it is included in this volume. The improvement of the sequence of basic courses in teacher training will eventually cure this situation.

The material in the volume has been used in mimeographed syllabus form with ten classes over a period of five years at the Graduate School of Education, Harvard University, and with one summer school class at the University of Oregon. The syllabus has been used by a number of instructors in other institutions. Critical evaluations have been made by a large number of students, public school teachers and supervisors, teachers college instructors and directors of training. Extensive rearrangement and revision has gone on continuously. The specific contributions of a dozen or more students, teachers, and supervisors are acknowledged in footnotes. Special acknowledgment is due Miss Mary O'Rourke.

Supervisor of Primary Practice Teaching, State Teachers College, Fitchburg, Mass., who read the material on units and used it in her own work and in the Harvard Elementary Workshop. A number of very valuable practical suggestions were made.

I also wish to make particular acknowledgment of the editorial assistance of Miss Vera Ambrose, Teacher of English in the Senior High School and Director of the Evening School Department of Secretarial Studies at Lynn, Mass. The entire manuscript was read twice by Miss Ambrose in the course of technical editing. A number of important additions to content were suggested, in addition to changes in language and format.

W. H. B.

Foreword to Instructors

Instructors using this volume as a text will make changes and adaptations in the order of the chapters, in the emphasis put upon certain items, in the use of readings, questions, and exercises. Classes made up of experienced teachers may omit certain chapters which with inexperienced beginners would need detailed study. Certain exercises could not be done by beginners; some others would be a waste of time with experienced teachers. Teacher training schools with short terms will need to select carefully the material to be used. Background may sometimes need to be sacrificed for practical necessity. The material, in short, will be adapted to many situations, to differing levels of maturity and experience. An outsider cannot tell a given instructor how to organize his course, nor should anyone attempt to do so. The following suggestions are general and for the guidance of all, regardless of local adaptations and changes.

1. A competent course in principles of teaching (or in anything else) cannot ever be taught from a book. This volume and any volume will be unsuccessful unless supplemented in certain definite ways.

a. An observation school or observation privileges in nearby coöperating schools is an inescapable necessity.

b. Large collections of specific materials must be provided for scrutiny, analysis, and guidance.

i. Source units, courses of study, proposed teaching units, logs of completed units; numerous charts, working plans, overt results of all kinds produced by a group while organizing and carrying on a unit. See Chapters 9 and 10 for sources.

ii. Daily lesson plans of traditional type, but improved as suggested in the text.

iii. Typical traditional daily or short term assignments ranging all the way from thoroughly bad to excellent. A good collection is noted in Chapter 11. Instructors should build local collections.

iv. Tests of all kinds: intelligence, achievement, diagnostic, improved essay examinations, problem situations, inventory, etc. The instructor in tests and measurements usually has a collection which may be used.

v. New type report cards; descriptive marking systems; cumulative record cards; any and all types of blanks used in administering a large school; school registers for rural and small schools; daily plan books; and all types of instruments for securing background material about the learning situation.

These items are not to be used as models for imitation. A profusion of them will prevent this. Their proper use is to illustrate, to prevent verbalism, and to prepare for participation. Audio-visual aids probably cannot be made available in one local collection because of the enormous extent and variety of these materials. A local collection of samples from various areas and levels is valuable. Visits to nearby schools and school museums or audio-visual departments should be provided.

2. Observation, increasing participation, and eventually apprentice teaching must accompany study of the text with inexperienced students. The course might, in fact, start with observation and analysis; but in any event participation and study of principles are inseparable phases of one problem. Experienced teachers need to make careful analyses of their own and of observed teaching, to participate on an advanced level, even perhaps to demonstrate.

3. Bibliographies in the volume are deliberately confined to a selection of immediately useful references. Samplings of both primary and secondary materials are included. Instructors and students will of necessity keep the bibliographies up to date through class reports of current books and articles. The periodical literature is so extensive and appearing so continuously that a listing is a waste of time beyond that already included in footnotes. A regular exercise with each chapter or problem may well be a report upon related articles, monographs, or other treatments.

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Part I

THE PRINCIPLES OF LEARNING

Just what is learning? What happens when you learn, that is, what things do you do in order to learn? What are the results of learning, that is, what have you learned? How do you know you have learned anything? How do you know that what you have learned was worth learning? How do you get pupils to learn?

One's first reaction to these questions is that anyone knows the answers to them. Learning is what you do in school. Learning consists in studying books, answering questions, asking questions, reciting, writing papers, and so forth. You know when you have learned when you can pass an examination. What you learn is subject matter out of the textbook. This material must be worth learning or it would not be in the book. Getting pupils to learn is easy. Lessons are assigned and pupils are forced to learn them. If examinations are not passed, the pupil has not learned; he is failed. All this is nothing but common sense. But common sense—as it usually is in technical matters—is quite mistaken.

The effort to analyze the questions below will arouse some doubt as to the correctness of simple common-sense answers. None of the activities listed above constitutes learning, though all are involved in learning. Astonishing as it may seem, passing examinations does not necessarily prove that anything of importance has been learned. A number of things learned in school are of no value to anyone anywhere. Paradoxically, forcing pupils to learn may effectively prevent learning. There is indeed more to learning and teaching than appears on the surface.

Building a correct, organized understanding of learning will demand much everyday common-sense observation and knowledge. Many of the most important aspects of learning can never be uncovered, however, through common-sense observation or by experience alone; knowledge

of critical, systematic research investigations of learning is necessary. Moreover, there must be understanding of the philosophy and purposes of education as a whole before principles of learning and teaching can be selected properly. This volume approaches the latter phase of education through analysis of the student's common-sense knowledge and own direct experience, a fragmentary and inadequate basis which will be supplemented throughout the book by study of essential scientific investigations and by analysis of the purposes of education.

The questions which follow are posed to focus attention upon the limited information and background of the student, to start organizing it, and to raise questions that will require further study to settle. This preliminary analysis deals with common-sense illustrations and with beliefs already familiar to the student. Scientific studies of learning, of the nature of the learner, and of the effect of specific factors upon learning appear later. The concepts of learning developed in this first chapter will be incomplete, but they are likely to differ so sharply from the present naïve conceptions possessed by most students that the ensuing systematic presentation will be vitalized. The incompleteness of this first presentation must be emphasized. Instructors and students will raise innumerable questions, especially as to details and implications. This is as it should be. The writer has deliberately sacrificed a logical, systematic, complete-from-the-beginning treatment for the sake of more vital student purpose. The first attack upon learning is through the student's own present ideas, contacts, and purposes. The systematic theory of learning will be built into and will correct the student's existing system of ideas.

DISCUSSION QUESTIONS

1. Make an analysis of what takes place when you yourself prepare a lesson. Proceed as follows:

- a. Prepare a brief but adequate step-by-step account of your procedure in studying or learning in a given field such as history, literature, music, a laboratory science, music, or mechanical drawing.
- b. Derive from this account a list of activities which you think are *learning activities*, derive a similar list which you think are *learning outcomes*.

The instructor may compile on the blackboard two lists—activities and products—based on three or more oral reports plus class discussion thereof. This is the basis for Question 2.

2. What, then, is learning—activity and product? Base the answer strictly on the data brought out in discussing Question 1. Do not allow any other knowledge possessed by you to influence the inference here. (A complete and correct answer is not possible, but deriving an answer as directed will focus attention upon important truths and errors in everyday thinking about learning.)

3. The answer derived for Question 2 is almost certain to be incorrect, if the directions are closely followed. Give some general reasons why this is likely to be the case.

4. Further analysis may improve the definition so far derived. Consider briefly differences in your study procedures which depend upon different in-

structors, different methods of assigning, of teaching, and particularly upon different methods of testing.

- a. Prepare a list of differences in activity and in product which depend upon sharp differences in situations as indicated.
- b. Select some activities and some products which seem to you to be superior to others. Be prepared to state explicitly the reasons for your choices.
- c. On the basis of this further refinement, attempt to construct definitions for the activity and for the product of learning in the simplest terms. A listing of activities and of products is not desired, but, if possible, one all-inclusive statement for each. (This may not be possible at this stage)

5. Even though answers to the foregoing questions may be incomplete or incorrect in part, the effort to derive the answers is extremely valuable. What did you learn, if anything, about the activity and product of learning from your work on these questions and from class discussion?

The discussion so far should have clarified the student's thinking about some aspects of learning. It will certainly have produced some desirable confusion and even more desirable doubt concerning some commonly accepted ideas about learning. A further exposition ensues.

6. Even though you have never taught nor have examined the psychology of learning in an organized way, attempt some preliminary analysis. On the basis of your present knowledge, make:

- a. A list of factors of any nature whatever which you think might encourage and facilitate the pupil's learning procedures.
- b. A list of items which might interfere with or destroy his learning process.

Be specific. Examine your own experience. Do not read texts or discuss with experienced teachers. It makes an interesting exercise to *write* these lists to keep for a return view at the end of the course!

7. Which of the factors listed might be more under the control of the teacher; which, less?

8. The outcomes of this course are knowledges and skills acquired by you to aid in directing the learning activities of pupils. The skills will come through practice, and we omit consideration of them for the moment. The knowledges must be acquired through the study of several problems. What are the problems which at this point you believe must be considered by you during this course so that you will acquire the desired knowledges? This tests your ability to analyze in advance the general problems of learning to teach. (Write it out for purposes of comparison at the close of the course.)

A PRELIMINARY GENERAL READING ASSIGNMENT

The following reading assignment should be completed within the first six or eight days of the course. It will introduce both experienced and inexperienced teachers quickly to the broad outlines of the pedagogical revolution of the past quarter century. The material refers largely to elementary and junior high-school levels, but the problems discussed are rapidly becoming acute in the secondary schools. As this is written (1943) it looks as though the war will bring into wide use in secondary schools the type of teaching methods long used by enlightened elementary teachers.

The reading is neither extensive nor difficult and can be covered easily within the time allowed. A quiz or a one-day discussion may well be held at the con-

clusion of the reading. Do not be disturbed by startling statements. Withhold vigorous agreement or disagreement, particularly the latter, until later in the course. Do not be misled by the early copyright date; the material is still important.

RUGG, Harold O., and SHUMAKER, Ann, *The Child Centered School* (Yonkers-on-Hudson, N. Y., World Book Co., 1928), Chaps. 1-10, 22.

National Department of Supervisors and Directors of Instruction, *Newer Instructional Practices of Promise, Twelfth Yearbook* (Washington, D. C., National Education Association, 1939), Chap. 1. This should follow reading of Rugg and Shumaker listed above.

1

A General Introduction to the Principles of Learning

This chapter opens with a typical case of out-of-school learning as it actually developed. The learning situation is presented quickly and as a whole. Technical terms are avoided in favor of everyday language. Piecemeal analysis and development of more remote implications are deliberately omitted so that a simple, sequential story may be unfolded at once. The immediate aim is a view of the outlines of a *whole situation*, free from distracting details, in order to give the student a reasonably clear picture of a total on-going process of learning.

The general outlines once established, the discussion will then proceed (in succeeding chapters) to bring out details, which have meaning only when seen in relation to the total situation of which they are a part. Technical terms and systematic critical analysis will be introduced as insight and meaning develop. This procedure clarifies both the whole learning situation and the details thereof. A fairly good picture of the total sequential activity and of its setting are necessary before one can understand the various details and factors entering into that activity.¹

SECTION I

AN ANALYSIS OF TYPICAL OUT-OF-SCHOOL LEARNING

An illustration of typical out-of-school learning. The writer had the opportunity some years ago to observe continuously day-by-day a learning situation which lasted several weeks. The coach and members of a country high-school baseball team set out to teach a large powerful farm boy how to bat. His strength would make him a distinct asset to the team if he could be developed into a consistent hitter. The boy himself was determined to make the team.

He entered a union high school from a small rural school where he had had little experience with team games. The attention centered upon him embarrassed him and increased his natural awkwardness. He was a little afraid of fast balls, shut his eyes, and swung the bat wildly. In baseball parlance, he "stepped in the bucket," that is, he moved far back from the plate with his left foot as he swung. Badly out of balance, therefore, he lost the full force of his strength and usually drove the ball

¹ A technical explanation will be found in Chapter 5.

deep into foul territory behind third base. He had plenty of power, but his lack of balance and of timing resulted in wild, lunging swings or cramped, choppy strokes. And—more elementary, perhaps, than these deficiencies—he did not even know how to hold the bat properly.

One fundamental asset he did possess, however, an asset necessary to all learning: *a purpose and end which had value for him*. His desire to make the team by learning how to bat overrode embarrassment and ridicule. He put in the long hours of arduous practice necessary to perfect a motor skill. He paid conscious attention to principles of good form and to the correction of specific errors. His skill increased.

His tenacity of purpose to learn was equalled only by the persistency of the coach and the players to teach him. They taped the handle of the bat so that the proper hold was outlined. They gave him oral explanations and directions; they gave him reasons for doing things in certain ways. They gave him a booklet on batting to read. Over and over again they explained and demonstrated hold, stance, and swing. They drew diagrams; he studied them. Day after day boys took turns pitching to him. Sometimes they made him swing the bat through an arc at an imaginary ball thus enabling him to concentrate on not moving his feet. They laid bats and marbles on the ground where he thrust his left foot out of position so that he slipped and fell when he made this error. They cornered him against a fence so that he had room to swing but could not step back. Small boys yelled at him when he closed his eyes and swung wildly. The various "teachers" were direct and merciless in their methods; they resorted to exposition, pleading, ridicule, exhortation, and demonstration; but through them all, the spirit was a kindly one. It was "all for the good of the team." Coach and fellow players both praised the farm boy's approaches to correct form and commended him for evidences of conquered fear.

As spring merged into early summer, the boy gained more and more ability. He stood up to the plate. He kept his eye on the ball. He developed a fairly smooth, powerful swing. He acquired a "good eye." He hit with increasing regularity. He learned to bat.

The learning activity in this illustration For the moment we may disregard all details in this complex illustration of learning in process and focus on the fact that from it we can extract a simple, direct description of learning activities and products and cull a brief summary of general basic ideas. The foregoing sharply abbreviated account indicates that the learning process is not a simple, single process but a complex of numerous and various procedures.

The chief learning activity in this case was *going through the act of batting*; however, vital subsidiary processes entered. The learner *listened* and *remembered*, two necessary learning activities. He *read* printed directions, *listened* to oral explanations, *studied* diagrams, *watched* demonstrations. Besides listening, remembering, and attempting to imi-

tate, he *analyzed* what he heard and read in order to *modify* his motor learning. He *asked questions* and received answers. He *analyzed* his errors of performance in the light of facts and principles read or heard and after watching experts perform.

The subtle and complex processes of *reflective thought* entered significantly. The boy knew he did not know how to bat. He could *list a number of specific difficulties*. From reading and listening he *acquired a number of abstract principles* about stance, balance, pivot, and swing. Speaking in common-sense terms, he had ideas and beliefs connected with the situation. Investigation and the learner's own questions revealed that he *pondered* the factors. To *take time to think* is a valuable learning activity. As he walked home, milked the cows, or did other things not requiring his full attention, he *analyzed suggestions and directions*. He *planned mentally* how to apply them. He saw himself "in his mind's eye." He rejected some suggestions, modified others, and evolved some new ideas of his own. He utilized all the range of *mental skills* in learning to bat: sharp *definition of difficulty*, *analysis*, *comparison*, *abstraction*, *anticipatory planning*, *guessing* what might happen, and many others. The boy's *past experience* was drawn upon repeatedly.

Another subtle and complex aspect of learning illustrated here is the effect of certain *attitudes*, both intellectual and emotional. The boy was spurred by a desire to make the team and by a desire for approval from his social community. He was definitely *affected* by praise, by ridicule, by his own enthusiasm when success began to appear, by dejection when progress seemed slow. The encouragement or discouragement resulting from the *attitudes* measurably affected the progress of learning.

These brief paragraphs indicate that learning is something far different from the common lay conception and from that all too common among teachers—a limited and largely futile conception of the learning process: read and listen, recite; read and listen, recite; and occasionally a brief and formal excursion among the learner's own ideas. In place of this, the modern teacher attempts to stimulate a rich and varied experience with dozens of mental, emotional, and physical reactions.

The learning product in this illustration. The chief learning product in this case was clearly a special ability, namely, batting, attained with some degree of *skill* or *facility*. A large number of other outcomes were also achieved while pursuing the chief one noted. A number of *principles* or *generalizations* about batting were acquired by the boy. These principles or generalizations are often called *understandings* in modern books on teaching and learning. Modern courses of study list desirable understandings. We shall not stop to enumerate these here; a later chapter covers them. In the present case the boy learned, for instance, that the length of a hit is not determined by power alone but by timing as well. He learned another principle necessary at this point: that timing means the delicate coordination of muscles, bat, and place of meeting the

ball. He acquired the principle that pivot and swing must be from a firm base. These and other principles are generalizations or abstract ideas which are applicable to many other life activities than the one in which they were learned. They may properly be called responses because the learner does actually respond to the situation by using one or more of them. Furthermore, these principles vitally affect the major response, namely, swinging the bat.

For the prospective batter, a number of *mental skills* were improved: relating verbal instruction to action, analyzing, comparing, accepting and rejecting suggestions for good reasons. These processes are involved in *learning to think*. It is possible that the simple *skills* of reading were improved since they were being utilized in the service of a purpose vital to the learner.

Certain *attitudes* and *emotional responses* were undoubtedly learned or, if previously possessed, improved. The boy did not of necessity go through the long and arduous training period. He did not have to do it. He could have remained a poor player, or he could even have become a spectator. He did not have to submit to the laughter and joking of the onlookers, even though this was alleviated somewhat by occasional praise and commendation. But he surmounted these obstacles; in fact, no amount of embarrassment or ridicule would have prevented his perseverance. Why? First, he had an intense desire to play on the team, a need to satisfy and the emotional urge to satisfy it. Second, he had a feeling of loyalty, boyish to be sure, but a feeling none the less of loyalty, to the school. Third, he desired intensely to find favor in the eyes of the school community. It was discovered later that, fourth, he greatly admired two of the most skilful players on the town team and desired strongly to emulate them. That is, the boy was motivated by *emotional drives* of one sort or another. These drives affect learning for good or for ill; but, what is more important, they are acquired as learning products themselves. This boy learned that persistence through difficult and unpleasant tasks is necessary and quite bearable in order to achieve a desired end. We may digress to point out that many parents and teachers think that children and adolescents are best taught to do the difficult and the disagreeable things in life by being forced to do them. It is said even that the training is better if the pupil consciously and actively dislikes the task he is forced to perform. The direct opposite is true. Children and adults learn to do unpleasant, distasteful things in pursuing purposes which they deem worth while. Granted acceptance of a desirable end in view, people will undergo the harshest experiences to achieve the end. Forcing people to do unpleasant, harsh, and distasteful things, far from "preparing for the realities of life," teaches them to avoid difficulties, to sidestep, and, in many cases, to lie and to cheat.²

² See Chapters 3 and 4, pages 81-85, 89-90, 112-120 for further discussion of this important point.

The illustration also noted that the boy was afraid at first. This emotional state robbed him of confidence and inhibited the free play of his muscles. He built up, that is, he learned, *emotional states*, however, that overcame his fear reactions. He acquired confidence, which is partly emotional, partly intellectual. This, in turn, significantly affected the major learning: learning to bat.

Other *attitudes* which were learned or improved probably included coöperation, willingness to accept deferred satisfactions, acceptance of criticism, fair play, abiding by the rules of the game, submergence of self for the sake of a team effort, and many others.

A number of *facts* about batting and other connected items were undoubtedly learned. Facts are to be distinguished from principles in that they are limited and specific whereas principles are general and not limited to one situation. A principle is itself a fact, but that distinction need not intrude here. The learning of facts has been subject to vigorous controversy in school. The school long ago fell into the error of substituting facts for other necessary types of learning outcome. Much teaching consists in pounding in facts from a textbook. Facts are accepted as the chief, and, in many cases, the only necessary learning product; memorization is the process of learning. Other extremists have attempted to throw all facts out of the school and to deny memorization a place. This confusion is all owing to a historical development explained later.⁸ Suffice it to say here that it was owing to losing sight of the original functional relation of facts to principles and to mental or motor activity. In this illustration, the facts were not ends in themselves, but valuable solely because they contributed to principles and eventually to the chief desired outcome, the ability to bat. The facts had meaning only because of this relationship. Facts as ends in themselves, as all too commonly taught, have no meaning. They do not constitute learning responses which are useful in the world. Facts are legitimate objects of study in school when they are themselves immediately useful, or, what is more common, contribute materially to important major responses.

The integrating nature of the learning situation. The most important characteristics of this learning situation have not yet been developed. First, all the learning activities of this boy were *unified* around one central purpose, to learn to bat in order to get on the team. All his reading, listening, thinking, practicing, and all his emotional drives and attitudes were related to learning to bat. Second, these activities were *continuous* and *simultaneous*, which means that they were related to one another in a useful way. The reading was not for the purpose of memorizing facts about batting which might affect batting some time in the future. Reading was for the purpose of affecting batting, not eventually but now. The improvement of batting gave meaning in turn to the reading. Furthermore, he did not read about batting exclusively and in isolation.

⁸ See pp. 24-29.

He did not listen to explanations in a separate period nor did he discuss them for their own sake. He did not "study" correct form from diagrams so that he acquired an excellent theoretical knowledge but divorced from any actual handling of the bat. Instead, all these learning activities went on in what is called an "experiential continuum." Each experience undergone by the learner was based on experiences which had preceded, and each experience as it eventuated definitely affected each succeeding experience. To be sure, he could not be swinging a bat while reading the pamphlet nor while analyzing advice. Neither could he stop in the middle of a swing to look at the book. Nevertheless, psychologically all these events are truly continuous and simultaneous parts of one on-going stream of experience.

A third important characteristic of an integrating learning process is that it is vividly and functionally *interactive* with the environment. The discussion of learning has so far stressed the inner or psychological aspect. It is equally important to note that the learner was moved by influences completely outside himself, by his total physical and social environment. The aims, purposes, and mores of the surrounding adolescent group were accepted as desirable and hence they directed his learning. Other persons, several of them, definitely affected his learning. He in turn affected them by acceptance, modification, or rejection of their advice. The size and weight of the various bats available, the ball, the playground itself—all conditioned the learning process. He affected the environment in so far as he could select or change any item. He affected the other boys competing for places on the team and they influenced him, particularly as each failed or succeeded. The very rules of the game, the necessities and conventions of team play determine in some measure the process and product of learning. Team membership was dependent upon the maintenance of designated levels of achievement in school subjects. Hence, the school administration, the texts, the course of study, the teachers and their methods all affected and were affected by this boy's purpose and learning activity.

A learning experience which is *unified* around a purpose real to the learner and which is *continuous*, *simultaneous*, and *interactive* with the environment is said to be an *integrating* experience. Technical explanations will come later. Here integration may be taken to mean that the learner identifies himself with the learning experience; that the learning outcomes become a part of his personality; that the skills and abilities, attitudes, and principles learned are woven into the already existing fabric of his knowledges and abilities. The things which have been learned have been integrated into his dynamic personality. *They are truly a part of him and not something memorized for the sake of repetition on demand.* They will not remain dormant but will enter into his subsequent behavior.

Summary of the important characteristics of this illustration. One illus-

tration proves nothing. A natural case of on-going out-of-school learning may not be complete, nor may it be carried on in the most effective manner. Many more cases of learning in and out of school, many scientific investigations of learning will need to be analyzed before complete understanding is possible. The immensely complex nature of learning experiences should begin to impress the student. *A good learning situation consists of a rich and varied series of learning experiences unified around a vigorous purpose, aimed at a number of different learning products, and carried on in interaction with a rich, varied, and provocative environment.* How different this is from the limited formal procedure of assigning a chapter to be read for subsequent recitation! We shall discuss later a number of subtle factors which further complicate the process.

This illustration was selected because it does enable us to see directly some important aspects of learning. The following list refers only to this case but it will be amplified and generalized later.

1. *The learning situation was dominated by a purpose and goal set up by the learner.* As we shall see later, social purposes and pupil purposes must be coordinated. Not all pupil purposes are worthy, nor will pupil purposes alone lead to all necessary learning. Nevertheless, a purpose originated or wholeheartedly accepted by the learner is an indispensable aspect of all learning situations. Without it, learning does not take place.

2. *The purpose and goal arose out of the natural on-going life of the learner.* One of the earmarks of the truly great teacher is the ability to utilize the natural purposes and activities of learners in typical school situations.

3. *The learner persisted through difficulties, obstacles, and unpleasant situations because he deemed his objective worth the price.*

4. *The learning process consisted chiefly of doing the actual thing to be learned, but a multitude of varied, natural learning activities also entered to contribute to the central learning activity.* Amplified later this point becomes a basic principle: we learn what we do, and we do what we learn. The boy learned to bat by batting, and not by reading or talking about batting. He learned to accept criticism by accepting criticism, not by listening to lectures on the necessity of so doing. He learned to coordinate ideas with actions by doing just that and not by drawing pictures of the process. This is extremely important in understanding learning and the use in the world of what is learned. Many teachers and parents seem to believe that learning one thing will certainly produce quite different desirable learnings.

For instance, memorizing the Constitution is thought to produce good citizenship. This is pure nonsense, though ideas about good citizenship and about our laws undoubtedly contribute. Pupils learn to be good citizens by actually doing in school those things which are the acts of good citizens. A teacher recently told the writer that certain boys in her room could not be monitors or otherwise participate in the citizenship activities of the room until they had "learned to control themselves." They will never learn to control themselves by being excluded from normal activities. They will learn control by participating in situations necessitating control and in which they themselves see the desirability of self-control.

Memorizing the multiplication tables is thought to enable children to judge when to multiply. This will not even enable them always to multiply well! It

is much better to teach children how to multiply than to have them memorize the tables. Having learned to multiply, many children then turn around and construct the tables themselves as an aid to a process already understood because used in meaningful situations.

5. *The learning products were numerous and varied.* The chief outcome was supplemented by a fair number of related outcomes both motor and mental. These were not only valuable in the given situation but also in other real life situations. Several will be continuously useful throughout life

6. *The numerous learning activities and outcomes were unified around and related to the purpose which dominated the entire situation.*

7. *The learner reacted as a whole.* His mind, his body, and his emotions were simultaneously and coordinately engaged. He did not, as the school too often attempts to make learners do, train his mind without relation to the bodily and emotional reactions involved. He did not train his muscles and pay no attention to intellectual and emotional accompaniments. He learned, as we say, "all over."

8. *The learner reacted to an aspect of the total environment which was meaningful for him.* Interaction with the environment means, of course, interplay with all those items which affect the dominant learning activity.

9. *The learner was directed and aided by certain persons within that environment.* This indicates that learning may be made more efficient through the participation of teachers.

10. *The learner was carrying on other purposes, related and unrelated to the dominant purpose here.* This point has not been brought out in the discussion, but it is important. People are engaged in carrying out a number of purposes concurrently. Any one selected for attention, as in school learnings, is but one of a number of activities in process. All living organisms are constantly involved in activities necessary to achieve purposes and satisfy needs.

DISCUSSION QUESTIONS

1. Prepare a written account of a case of learning in process, preferably an out-of-school illustration. The case may be one actually experienced by you or one merely observed. Use the description in this chapter as a guide, but do not follow it slavishly. Different types of learning situations will call for different types of description. Give an adequate and accurate description without being verbose.

2. Prepare a written analysis showing (a) how various types of learning activity entered into the total process; and (b) what learning products, either general or specific, eventuated

3. Turn now to your own learning experiences in elementary or secondary school. Recall as well as you can specific situations illustrative of good or poor teaching, so far as you can judge teaching at this stage. Present orally in running discourse an analysis of a recalled situation showing how the *ten points* summarized above were exemplified or violated. Not all ten points need be included in any one report.

If good situations are not readily recalled, students may observe several lessons in succession in the training school or cooperating schools and report as above.

4. If the answer to Question 3 does not bring it out, state here what purposes pupils are usually following when the teacher thinks that his imposed purpose is being followed.

5. It is not so necessary in certain special subjects in secondary school and in college to make detailed effort to connect the subject with the student's

natural interests. It is not at all necessary in the graduate schools. Why not? (A complete answer will be derived in a later chapter, but preliminary understanding at this point may prevent confusion which otherwise always seems to arise during these first discussions about learning.)

SECTION 2

AN ANALYSIS OF SOME ASPECTS OF SELECTED SCHOOL LEARNING SITUATIONS

The foregoing analysis of learning, brief as it is, should have aroused a suspicion in the mind of the student that many school learning situations are not all that they should be. It is clear, even to beginners, that many school learning situations occur in drab environments—limited, inadequate, uninspiring; some, in detrimental environments which definitely interfere with or prevent learning. Often the pupil purposes are not real to the learners; they lack life and power; they have no connection with the real life of the learner. The pupil learns, not because he desires what he learns, but in order to avoid unpleasant consequences, in order to please his parents or a teacher whom he likes, in order to get into a college to which the neighbors' children go. He learns because it is more comfortable than not to learn. He cannot use anywhere else some of the things he learns in school.

Instead of a list of vivid and diverse learning experiences, there is often only some dull reading, listening, memorizing, and repeating. Instead of abilities and skills, vital principles and attitudes clearly necessary and useful in everyday life, the outcomes are often memorized verbalisms which are not understood even when repeated letter perfect. Instead of being continuous, many school experiences seem almost designed to interrupt the natural continuity of the learner's processes. Interaction is always present in any situation, but it may be interaction with but a few limited aspects of the environment. Only a few of the more intellectual reactions of the total organism may be exercised.

The picture, however, is not so black as the foregoing paragraphs might imply. Learning experiences which fulfil all the natural biological and psychological principles of learning have been appearing in schools for a long time now. It is possible to see in many schools vivid and dynamic learning situations which are in response to purposes recognized by the pupils as important in their lives. The types of learning activities engaged in by pupils in good schools are as wide as life itself. The outcomes are knowledges, attitudes, appreciations, abilities, and skills which are widely varied, and all are clearly useful in the immediate world of the learner. The outcomes will develop through progressive levels in well-organized schools, each level useful for itself, into outcomes useful in the wider adult life of the pupil as he emerges into that life.

The improved practices do not just come. They are the result of continued, painstaking, systematic, critical thinking and effort on the part

of enlightened teachers. The revolution of the last forty years in teaching and learning has not come easily. What goes on in modern schools is often incomprehensible to the unthinking traditional teacher. Basic changes have been necessary in the curriculum, in textbooks, in the administration of the schools, in the organization of the school day—in fact, in every aspect of school life. Back of these changes in technique were more important changes in the basic aim and philosophy of education. The whole relation of education to the society in which it exists had to be reexamined. This fundamental upheaval is still going on and will doubtless continue for generations. Knowledge of the total educative process is essential before the details of technique can be intelligently considered. It is assumed that this background has been developed in other courses. The present volume must of necessity be confined to analysis of the teaching-learning situations as it is hoped they will develop in classrooms.

Vivid, purposeful learning possible in school. A beginning student may doubt that in-school learning situations can be as natural, as interesting, and as vivid as out-of-school experiences. It may be said that any boy would work hard to get on the team because he is interested and regards the achievement as valuable to him. But what does he care about studying the Civil War! Of course he will persist through difficulty and unpleasantness in learning to bat because the end-in-view is worth it; but he will not persist in learning correct language usage or attitudes of coöperation or skill in solving quadratic equations unless he is forced to it. Let us not be too sure! It is to be granted, of course, that the whole of school life cannot be maintained at a high level of interest and enthusiasm, but it has been demonstrated that competent teachers can keep so much of it at desirable levels that the whole is thereby vitally affected.

Before taking up specific illustrations cited below, it must be noted that some of them are within subject-field limits; others are not within any subject field but draw from several fields. The tendency to set up life-like situations without regard to subject lines is well established in the modern elementary school and is spreading with reasonable speed. The technique is paralleled in some of the new core curriculums in the secondary school. The majority of learning situations develop out of the natural activities and needs of children. Subject matter of many kinds and learning activities are organized by pupils and teacher as need and insight develop. Even within the limits of the independent special subjects on the secondary level, the materials are now being organized into more functional units more closely related to life needs, purposes, and natural learning processes. Such procedure represents the most skilful type of teaching now known. Many modern courses of study are definitely designed to fit this type of teaching.

Many elementary schools still use a prescribed, formal course of study

which is poorly, or not at all, related to pupils' interests, needs, abilities, and learning processes. Many secondary schools retain a formal, logically organized curriculum. The average teachers assign segments of this material and get such learning as they can. Better teachers, however, do not conform with docility. Forced to use a formal curriculum, they make every effort to connect it with the life interests, needs, and activities of the pupils; they try to make it meaningful and useful, hence learnable. When successfully used, this method represents the highest type of formal teaching.

Illustrations. The following illustrations are taken from ordinary, average classroom situations in distinctly typical public schools. Not one represents a "show" situation. All were regular "next-lesson" types and were not specially prepared for demonstration or written up for publication. Three of the four cases actually arose spontaneously during the natural on-going conversations and activities of the pupils. In the first one described below the unit was not merely initiated through the children's activities, but it was organized and developed that way as it progressed. Good course-of-study material was available for the second and third units which was readily adapted to the pupil inquiries and purposes coöperatively by pupils and teacher. The fourth case represents the skilful connection made by the teacher between arbitrary, required, and by itself useless, subject matter and the real life needs of the learners. Contrary to the beliefs of many experienced teachers, thousands of such illustrations are available.

UNIT BASED ON SPONTANEOUS INTEREST AND NATURAL ON-GOING ACTIVITIES, AND NOT BOUND BY SUBJECT FIELDS. NO FORMAL SUBJECT MATTER AVAILABLE. UNIT DEVELOPED AS IT WENT ALONG.⁴

"PEOPLE WHO HELP US IN SCHOOL." *A first grade is introduced to interdependence and cooperation.* An insistent plea of modern education is that children be introduced to the nature of the political, economic, and social world in which they live. The traditional school does this through formal description, verbalisms, and the memorization of formulas and relationships. The new school attempts to do this through first-hand experience with such aspects of community life as directly affect the lives of the children. Kindergarten and first grade are not too early to begin this functional type of integrating with the actual environment.

A first grade returning after a holiday found that water was spilled on the racks and the floor where some potted plants which were being watched and tended had burst into bloom. How could this have happened when no one was there to water and care for them? Closer inspection revealed that all the plants had been watered, so well, in fact, that water had been spilled on tables, window seats, and floor. The little boy who had been chosen by the group to be "plant waterer" said he had not

⁴ First grade, Tufts School, Medford, Mass. Theresa Mack, teacher.

been in the building during the holiday. Questioned next, the teacher said she had been far away. A child volunteered that she had seen the janitor shoveling snow and entering the building during the holiday. A committee was sent to ask if the janitor had cared for their plants and if so to thank him. The janitor could not be reached as he was shoveling snow and then had to tend the fires before being interviewed. Said one boy, "The janitor has to do about everything around here, doesn't he?" As is natural with small children, all began telling things they had noted the janitor doing. Shortly some one named another person, the teacher, who helped the children; they mentioned the school nurse, the special art teacher, and others. The teacher led the children in making a list of "people who help us in school." In the weeks that followed, the children were amazed to find that twenty-three different persons did things for them. They formulated questions and found the answers. They had recourse to excursions and interviews. They wrote stories based on the experiences and used them for reading material. In booklets they found pictures of many helpers and drew with crayola those that were missing. Eventually the children decided to reciprocate; they made gifts and delivered them to some of their helpers, and others they thanked in different ways. Even with children as little as first graders, some very simple understandings and appreciations of community organization were gained. These learnings can be matured and expanded in succeeding grades through further contacts with the environment as it functions in their lives.

A SECOND UNIT BASED ON SPONTANEOUS INTEREST AND NATURAL ON-GOING ACTIVITY, NOT BOUND BY SUBJECT FIELDS. ORGANIZED STUDY MATERIAL AVAILABLE BUT READILY ADAPTABLE TO PUPIL PURPOSES.⁵

"HOW MERCED PROTECTS OUR HEALTH AND SAFETY." *A fifth grade studies the health and safety services of its own community.* Elementary-school children continually comment upon all aspects of their environment. They ask questions about the street-cleaning apparatus. They investigate where gangs are putting in water mains or sewers. Why is milk served in the schools? The doctor keeps us from having diphtheria or scarlet fever by scratching our arms. The policeman stops traffic so we can cross the street safely. The teacher one day gathered a number of these comments, developed reasons for these well-known items, and moved over to costs. It was soon apparent that a large number of things were done continually to keep the public healthy and safe. The children were vaguely aware that the city did all this and that taxes paid for it. A problem was soon set up: "How Does Merced Protect My Health and Safety?" From this simple beginning the whole structure of local government dealing with health, sanitation, and safety was studied. Since the point of reference was the effect upon the child's own actual life, the problem, the

⁵ Elementary school, Merced, Cal. June Graham, teacher.

readings, interviews, letter-writing, committee work, making exhibits were all attacked with vigor. This procedure is quite different from memorizing the names of the city departments and lists of their services and costs.

UNIT BASED ON SPONTANEOUS INTEREST AND PUPIL PURPOSES,
BUT WITHIN A SUBJECT FIELD AND CORRELATED WITH VARIOUS
OTHER SUBJECTS. COURSE-OF-STUDY MATERIAL AVAILABLE ⁶

"DESIGNING STAGE SETTINGS, COSTUMES, ETC., FOR A STUDENT-WRITTEN MUSICAL COMEDY." *A twelfth-grade class plans and makes settings, costumes, etc., for a student play* A regular high-school class in Art III was just entering upon the topic "stage designing." It became known that one ambitious student had been writing a musical comedy and was planning to produce it himself. A class member casually asked if the group could work upon the actual scenery and settings for this play. A girl immediately said that she would like to design the costumes. Sensing the possibilities, the teacher encouraged the discussion. Eventually the class members embarked upon what turned out to be a complex series of activities. Students enthusiastically organized and carried out detailed plans for the whole project. Individual and group research went far afield for necessary information and materials. Committees were formed to study scenery, characters, costumes, direction, stage business. This led into research on authenticity of scenery and costumes, the problems of casting, the techniques of make-up, music, lighting, and so forth. Attempting to produce the play led into financing and publicity and this in turn into poster work. The sewing classes participated in choosing, evaluating, and making up costumes. Other school departments and officers were drawn in; one department only did not coöperate. A boy in another course asked permission to make a complete photographic record of the procedure from formation of the committees to production of the play. In addition to technical knowledges and abilities (the original desired outcomes of the course), the class learned many general principles and attitudes of use in all democratic, coöperative enterprises. The students actually dealt more adequately with the "required" material of the course than if they had studied it under typical assigned lessons. Details are omitted in this account since we are concerned for the moment with but one point, the effort to connect school learning experiences with real life purposes.

LESSON IN WHICH REQUIRED SUBJECT MATTER IS SKILFULLY
CONNECTED WITH THE PUPILS' LIFE INTERESTS AND NEEDS.⁷

"THE RECONSTRUCTION PERIOD IN UNITED STATES HISTORY." *An eleventh-grade class studies the Civil War in relation to current problems in their lives.* It may be objected that the preceding illustration is in a specialized

⁶ Senior high school, Belmont, Mass. Norman Brule, art teacher; M. Donald Plummer, supervisor.

⁷ Senior high school, Salem, Mass. Lawrence B. Fennell, teacher.

field; the students may be expected to be already interested and capable, making it easy to arouse vigorous, persistent interest and effort. In fact, a student in one of the writer's classes remarked that he would like to see some one make a modern teaching unit out of, say, the Civil War! Fortunately, half a dozen such units were available. A non-college-preparatory group in United States History had arrived at the textbook discussion of the Reconstruction Period. Newspapers at the moment were chronicling the end of the Russo-Finnish war with headlines: RUSSO-FINNISH PEACE. The teacher had planned to discuss this, but before he could, a boy of Finnish parentage asked if the teacher had seen the headline. Yes, but what did the headline mean? The class said that it meant that the soldiers would quit fighting and go home. Is that what peace means? Why, yes, of course! The class was quite content to let it go at that; anybody knows that peace means that fighting stops. The teacher kept the student-initiated discussion alive with some seemingly innocent, casual questions, and in short order, the group was wrangling vigorously over what peace really did mean. Pretty soon there emerged some major questions which the teacher seized upon and wrote on the board. How can all the discharged soldiers be put to work again? What will they do if there is no work for them? How will the cost of caring for the wounded be met? What is to be done with all those whose homes were destroyed? Will charity care for these or will extra taxes be necessary? What can be done about the violent hatreds and fears which must have arisen out of the fighting and destruction? The students were astounded at the complex and far-reaching meaning of the simple word "peace." Merely stopping the fighting is a very small item in peace. Peace, they discovered, means a period of most difficult problem-solving for both victor and vanquished. How can these dangerous problems be solved? One boy asked how we had done it after our own wars. This set off arguments about the experiences of their own fathers in getting adjusted after World War I. Another student actually proposed that we ought to study our wars to see what we did do, not merely to see what problems the Russians and Finns had, but because we might be in World War II before we knew it! (This lesson was taught long before we entered the war.) Several students agreed that it would be a good thing to know in case we ever did have a large army to care for after a war. Other boys said that they themselves might actually be in this war if we entered. Whereupon, an electric current seemed to run through the class—they themselves would be an actual part of this "problem-after-peace" situation. Attention sharpened vigorously. The teacher then exercised leadership and induced the students to put their questions into some sort of organization. Throughout the period, the pupils engaged in lively interchange, making suggestions, selecting and rejecting, manifesting the same interested participation which they give to their own affairs outside of school. The teacher began to give references to build

up an assignment and among others was the required text. This despised book was attacked with enthusiasm! So far was the class carried from typical classroom situations that as the period ended, one boy sensing what the teacher had done, exclaimed, "Oh boy, did you put that one over on us!" This procedure was not mere trickery in any sense. It was admirable teaching skill operating to make meaningless subject matter useful. Interest persisted because the class saw clearly the relationship between material in the text and a possible life situation in which might be found their elder brothers and, in the not-too-distant future, themselves.

SECTION 3

THE ORGANIC CONNECTION BETWEEN LIFE AND EDUCATION; BETWEEN EXPERIENCE AND LEARNING

The preceding introduction to learning is brief, general, and incomplete. The concept of learning presented is doubtless new to the majority of students entering upon this course. In keeping with the theory on which this volume is based, the introduction of scientific evidence and systematic logical argument is delayed until later chapters. Chief reliance at this stage is placed on analysis of everyday knowledge already possessed by the student. Is there, then, any warrant in common-sense knowledge for the theory of learning presented? Let us examine the stream-of-life experience within which we all live and learn.

If we examine the life of any normal adult, we discover that the individual is engaged in carrying on a series of organized activities for ends and purposes which the individual believes are worth while. That is, individuals are engaged in earning their livings, in rearing families, in participating in local and national political affairs, in securing pleasure and relaxation, in maintaining health, in educating themselves, in religious activities, and so forth. These major social activities necessitate scores and hundreds of subsidiary activities. Parents plan the education of their children, they budget their incomes, they plan for and buy homes, they study nutrition, they learn to play games, they read magazines, they serve on committees, they plan vacations, they plan the buying of clothes, they plan a picnic for tomorrow. These activities may vary in extent and importance from planning marriage and a career to planning the arrangement of flowers in a small garden.

These activities are life. The individual learns from them hundreds of facts and principles, attitudes, mechanisms of social coöperation, abilities, and skills. He perfects these acquisitions through further experiences. The adolescent is similarly engaged. He seeks training for various vocations and professions. He engages in activities for pleasure. He seeks information concerning problems of courtship, marriage, and getting along with people. Investigations show that adolescents have many real questions dealing with life and engage willingly in extensive

study through which to obtain answers. The adolescent, like the adult, carries on many and varied life activities, and has many varied experiences for the purpose of satisfying some purpose or other. Little children are not ordinarily concerned with securing "food, clothing, and shelter," with problems of courtship and marriage. Their purposes and activities are more immediate and simple, but nonetheless real to the children. They play games, they keep pets, they play with toys and even construct some, they build huts, they carry on feuds with other children, they form associations, they assist parents in the home, altogether carrying on a long list of activities.

In short, if we observe any individual who is, as we say, "going about his business," we shall see that he is engaging in a series of activities which may not all be related to each other, but each of which is (a) directed toward a goal or purpose recognized by the individual and accepted by him as worth while at the time, (b) continuous with other life activities, (c) interactive with other persons and with factors in the environment, and (d) integrative for the individual in that it restores and maintains his equilibrium or successful adjustment within his environment. In fact, the testimony of biologists, sociologists, and psychiatrists indicates clearly that frustrated, unhappy lives result from activities which are (a) purposeless, (b) disjunctive, that is, unrelated to worth-while life activities, (c) in disunity and conflict with the environment. In extreme cases there results social rebellion or neurotic personality.

Vital, real-life activity, is actually a series of natural experiences, each unit more or less organized as circumstances demand. This is true of all living organisms from the amoeba upward. Life is a continuum of experiences. Not all life experience results in desirable learnings. Even the desirable learnings may not be learned economically through natural experiencing. The school exists as an institution to guide and improve natural experiencing.

DISCUSSION QUESTIONS

1. For any one of the four illustrations above work out for oral report the probable learning activities (experiences). The brief analysis of the activities involved in learning to bat will serve as a guide, but the prepared answers should be considerably more detailed.
2. Treat in like manner the possible learning products. State some of the actual principles or understandings; describe some of the attitudes; name and describe some of the abilities and skills. Be careful to state the outcomes in terms of the level of maturity indicated by the illustration.
3. Observe several lessons in the training school or in nearby cooperating schools. Preferably observe a sequential series of lessons for several days. On the basis of the *actual procedure* witnessed, express and support your judgment that the teacher was or was not relating the learning experiences to the real life needs of the pupils. Give detailed illustrations and arguments.
4. If you can recall illustrations, report (a) cases from your own school experi-

ences in which a teacher did skilfully and successfully relate formal school materials to life, (b) cases in which you now believe the teacher missed good opportunities so to do.

5. Students with teaching experience may present here a brief, preliminary list of some differences between traditional methods and those which have been hinted at in this chapter.

6. Take any formal assignment observed, or select a typical assignment yourself in your major subject. Make a vital connection between it and the typical life interests and needs of pupils for whom the assignment would be acceptable. You need make only a simple beginning here. Any crude effort will be acceptable. The purpose here is not to secure a finished assignment, but to sensitize you to the problem. Later you will construct sample assignments after having studied the technique in some detail. Eventually you will make many such in order to pass your practice teaching, or, more accurately stated, in order to fulfil your purpose to teach effectively.

7. Many uninformed critics of modern education assert that subject matter and books are discarded, "thrown out of the window." You will know more about this later, but what would you say on the basis of the brief introduction you now have had in this chapter?

8. Critics similarly say that modern education does away with authority and "lets the pupils do what they please," lets them determine the curriculum and "study what they please." You will need further study, of course, for a complete answer to this type of criticism, but what would you say on the basis of your present knowledge?

9. Someone has said that the traditional arrangement of a school-room and the nature of the desks were designed chiefly for listening purposes. What are some changes which would have to be made in typical elementary or secondary school-rooms if modern methods (so far as you can understand them at this point) were introduced? Make several points. Have you seen any changes already under way?

READINGS

It is suggested that this chapter be handled without supplementary reading. The aim is to utilize student experience, to arouse questions, and to avoid the acquisition of verbalisms by the student. The data of experience, though usually inadequate and biased, are convincing and carry meaning. It is better to begin with some inadequate, even incorrect meanings and develop from there, than to introduce memorization of verbalisms which may result from too early contact with text material.

2

Certain Misconceptions Concerning Learning

The purpose of the foregoing chapter was to introduce the student to the principles of learning, which will be further developed in succeeding chapters and recapitulated in Chapter 7. The preceding chapter also stressed the wholeness or unity of learning situations. Learning begins with perception of and insight into unified whole situations which normally appear in the course of natural on-going activity. Separate aspects or parts may then be discerned and understood for themselves. The parts have meaning only in relation to some normal, sensible, whole situation in which they occur. Now, however, certain aspects of learning have become detached from the totality of unified learning. The original separation persists in part from an earlier atomistic and mechanical view of learning, and may have been due in part to legitimate analysis for further understanding. With the passing of time, the treatment of these individual items as separate entities gave rise to a number of gross and serious errors widely believed by the public and by the teachers. These errors led inevitably to incorrect practices in handling children. The present chapter analyzes four prominent fallacies. Continuing the policy of the volume, we begin with the uncritical, personal knowledge of the student and work toward a soundly based theory of learning. Even a deliberate attempt to segregate the discussions is not wholly successful; the student will notice that the four items overlap. Discuss the following introductory questions before doing any reading.

1. A girl about to take the state teachers' examinations in various subjects discovered the night before the examination that she must take a quiz in agriculture. She had overlooked this in the announcement of the examination. She hurried out, bought the state-adopted text, and sat up most of the night to read it through. Next day she took the examination in agriculture and received a grade of 96.

2. A father complained about his son's education, stating that he was shocked to find that the boy did not know where either Yucatan or Trinidad was, what hemp was, nor how to work problems by proportion.

*Did she learn agriculture?
What did she learn?*

*What erroneous ideas of
learning lie back of such
a situation?*

*What detrimental beliefs
about learning are en-
couraged by this com-
mon procedure?*

*Was the father partially,
wholly, or not at all
right in his criticism?*

*What definite questions
might you ask this father*

in order to stimulate his thinking about education?

Could you use any of the items the father used and construct a question which would truly test the boy's learning, or at least be aimed at testing it?

5. Another father complained that his son's education had not trained him to think, to do, or to attack ordinary problems on his own initiative. The boy had unusually high grades, but according to the father always came to the latter for planning and decisions which he should have been making for himself. When the boy asked to go to scout camp for a month, the father told him he could if he would make all the plans himself, putting in writing the equipment, clothes, money, and so forth, he would need. Immediately upon arrival at camp, the boy had to write home for money and practically every day he wrote for some items of equipment that all the other boys had brought with them.

Was the father partially, wholly, or, not at all right in criticizing what his son had been learning?

How do you account for the boy's high grades in the face of inability to act intelligently?

What, in general, is the matter with the type of education given to this boy?

SECTION I

THE PROCESS OF LEARNING IS OFTEN REGARDED AS CONFINED TO THE EXPERIENCE OF MEMORIZING, THE OUTCOMES OF LEARNING ARE REGARDED AS FACTS OR SKILLS AND THE ABILITY TO REPRODUCE THE FACTS FROM MEMORY

The following brief composition about the Washington Monument was submitted by a twelve-year-old boy:

The Washington Monument is built of stone contributed by all the nations of the earth to honor the founder of this republic. From Arlington, across the river, where sleep the men who died for freedom, it looks like a giant spike which God might have driven into this earth, saying, "Here I stake a claim for the home of Liberty."

The teacher rejected this because certain "facts" were omitted: the height of the monument, the number of steps in the stairway within the shaft, the cost and time of construction, and the number of annual visitors. "But," said the boy, "I was trying to tell what the monument means and why it is there." He was reacting to it as a whole possessing meaning; the isolated facts were not important.

This illustrates one of the commonest and most serious misconceptions of learning. Learning is regarded as the memorization of facts; memorization, the process; facts, the outcome. Memorization and facts are at times legitimate concerns of learning, but not to the exclusion of other aspects.

In this particular case, the boy's learning activities included a number of fine emotional reactions of appreciation, plus intellectual processes of understanding, and a number of mental skills. The outcomes were several, chiefly here a meaning or understanding and an emotional attitude of appreciation. Later in this volume understandings (principles, generalizations, meanings), attitudes, appreciations, special abilities, skills will be adequately explained as outcomes of learning; for the moment, common-sense understanding of these terms is sufficient.

Traditional school practice has been to treat the content of books and of courses as the learning product to be mastered. Small pieces of this content, "lessons," were studied, that is, memorized to be recited to the teacher. This misconception of learning process and outcome has dominated the theory and practice of untold thousands of teachers of the "text-coverer" type. Laymen have accepted the view as correct and as based on centuries of practice. The interesting and significant thing is that this accepted view is not only incorrect, but represents a degeneration over a period of centuries from a far better concept. In fact, many so-called "modern," "new," "progressive" methods of teaching are not at all radical except when compared with current formal methods. Many are not radical experiments at all but are closer in some respects to learning and teaching practices which greatly antedate the memorization-of-facts concept. The newer methods are, of course, based upon recent research into the psychological and biological nature of the learner and in that sense are definitely new.

The evolution of the separation between facts and meanings. The history of the progressive divorcement of facts from their proper relation to learning, and of their rise as end points in learning is a long and interesting one. There seems to be a cycle in the history of education which repeats itself from time to time. At a given period learning and life are closely interrelated, learning takes place in lifelike settings and for life purposes; the things learned are useful. Education and life are, as we say, functionally interrelated. Time passes. Formalism develops. Education becomes more remote from life, that is, bookish and verbal, abstract and academic. Pupils learn *about* life, but they do not learn life. They repeat formulas and verbalisms instead of grappling with real problems to achieve results usable in life. They engage in the limited learning processes of reading, listening, and repeating, to the exclusion of other varied processes which must enter into any realistic learning situation.¹

The period during and following the Renaissance illustrates this process. By the rediscovery of the classical literatures with accounts of

¹ The cycle so briefly and superficially outlined here may be studied in greater detail in many sources, chiefly histories of education or histories of civilization. For a very brief, readable account, see Stephen Duggan, *A Student's History of Education* (New York, D. Appleton-Century Co., Revised, 1936), Chaps. 8 ff.

the magnificent, democratic, and creative civilizations which once existed in the world, students realized that these free and advanced civilizations had been created by men like themselves, and could be recreated in the world. Schools sprang up everywhere to educate young men for leadership in a new world, the curriculum included Latin and Greek literatures since they contained the understandings, attitudes, ideals, and appreciations upon which it was thought the new mode of life could be built. Note carefully that these languages were studied not for "mental discipline," for the sake of memorizing the conjugations and the declensions, for the ability to recognize ablative absolutes and datives of possession and to parse; the purpose of learning and teaching Latin and Greek was the *derivation from the subject matter* of the basic and controlling understandings, meanings, and attitudes! The students *did not learn the subject matter*; they derived valuable learnings from it. The things learned were learned for use. But a change came. Time passed. The first flush of the new humanism cooled. The old master teachers passed on and their places were filled by less able men. More and more pupils came to school. Soon so much time and energy were spent on learning the form of the languages that pupils never did arrive at the understandings and meanings inherent in the content of those languages! Learning became the conjugating of verbs, distinguishing between gerunds and gerundives, finding the proper verb forms to use in indirect discourse. What the discourse *said* became of less moment! The cycle had been completed: forms and facts had replaced meanings and appreciations as end points. Instead of critical evaluation and derivation of meanings, learning what the book said became the process. The vigorous, provocative fulminations of Cicero against Catiline in the Roman Senate became dull, dreary materials for grammatical analysis and translation. That these orations were vivid and enlightening avenues through which to understand life and conditions, through which to understand political machination and intrigue, was lost to sight. Today in our own secondary schools, materials such as these are still taught for language form and not for enlightenment which might actually bring understanding of certain conditions in our own national life.

Subject specialists as well as psychologists and educators recognize the weaknesses. This statement by Sumner is but one sample of many available:²

Pupils are not taught how to study mathematics—they are drilled on formulas. The result is overdeveloped memory and underdeveloped reasoning power.

Elementary-school geography has been taught for generations not merely as facts divorced from reality, but ironically from a reality which had nothing to do with elementary education in the first place. For most

² S. C. Sumner, *Supervised Study in Mathematics and Science* (New York, The Macmillan Co., 1922), p. 4.

of us, geography was a matter of oceans, gulfs, bays, continents, capes, islands, isthmuses, latitude and longitude, zones—places—places—places. This geography came into being toward the end of the fifteenth and during the sixteenth century, the era of Columbus, Magellan, Drake, and other discoverers and navigators who found new worlds and circumnavigated the globe. The geography of places, prominent landmarks, latitude and longitude, distance, of prime importance in navigating and making landfalls, was organized by mature adults for use in the world. It became the subject matter for little children—a game of memorizing all sorts of isolated facts dealing with location, direction, and distance. The apotheosis of this type of geography was that ultimate absurdity of all elementary education, “saying the capitals of the states.” The passing of time ameliorated this state of affairs, of course, and today elementary geography is well established in modern schools as something different. Places and locations are learned functionally—that is, in meaningful situations; the emphasis is on how man lives in his environment and the effect of environment upon all habits, customs, philosophies, and religions, as well as upon the elementary activities of securing food, clothing, and shelter. It involves more than this brief paragraph can indicate. Note, incidentally, the learning of places and locations by the public of the United States since the war started in the Pacific. This is as different from traditional “place” geography as day is from night.

The confusion induced in childish minds by this memorizing of fragmentary facts in isolation from their setting and meaning has been aptly satirized by Dickens in *Dombey and Son*. Incidentally, Dickens's novels written in the nineteenth century are replete with protests against traditional education and full of excellent pleas for the type of modern education which we are today developing.

When he had spelled out number two, he found he had no idea of number one; fragments whereof afterward obtruded themselves into number three, which slid into number four, which grafted itself onto number two. So that whether twenty Romuluses made a Remus, or *hic haec hoc* was troy weight, or a verb always agreed with an ancient Briton, or three times four was Taurus a bull were open questions with him.

As will be recalled, Paul Dombey died during the period of his early education. The other young gentlemen in the school were not so fortunate. As these paragraphs were written, the attention of the author was called to a modern illustration of Dickens's fictional satire. A girl showing a visitor certain exhibits based on study of Egypt said, among other things, “The Pyramids are a kind of mountain in Egypt. The Spinks was a lady that got stuck in the sand.” Here again facts (*sic*) are wholly removed from setting and meaning. Evidently no effort had been made to show the relation of the Pyramids to the religion and superstition of the Egyptians. The tremendous drama involved in the

forced labor of thousands of slaves working upon the Pyramids, giving significant insight into the social order, the understandings, and attitudes of the day, was apparently omitted. The place of the ruling classes, the pageantry of burials in the Pyramids, the recent explorations and exhumations were evidently ignored. The text was covered, however, facts learned, "results" achieved. Fortunately, scores of illustrations to the contrary can also be cited from modern schools.

Separation between facts and meanings furthered by administrative procedures. As more and more children came to school, more and more tasks were shifted to the school, and certain routines had to be established in order to get anything done. There evolved—unfortunately, we know now—the system of forty- or fifty-minute periods which so many take for granted. This was not the only way that might have evolved and we now know better ways to manage the school day. The effect of the period system was that learning was chopped up into forty-minute segments. The emphasis inevitably was upon items learnable in forty minutes or within a few such periods—namely, simple, isolated, fragmentary facts. The true learning outcomes, understandings, attitudes, and appreciations, and abilities are cumulative and develop best under reasonably continuous learning activities. How this can be accomplished³ is explained throughout this volume. The insistence that learning activities cease with the bell every forty minutes or so has been aptly satirized as "the ridiculous imperative"⁴

Efforts to counteract this misconception go on continuously. Lazy and untrained teachers automatically oppose any suggested improvements in teaching; however, many earnest, sincere, and practical teachers also oppose them. They are no less uninformed than their unprofessional colleagues, but their opposition is honest. For the benefit of these honest, and doubtless educable, teachers, reference should be made to the history of civilization and of education. The particular errors which beset the practice of many experienced teachers and which exemplify the misconception here have been under attack since the beginning. A clay tablet several thousand years old contains the complaints of a merchant that his son, then in the store, had not learned in school to keep money straight, to compute accurately, etc.! Long before Columbus discovered America, complaints were heard in Western Europe. Listen to Peter of Blois (circa 1200):⁵

Quid enim prodest illis expendere dies suos in his quae nec domi, nec militiae, nec in foro, nec in claustris, nec in curia, nec in ecclesia, nec alicui prosunt alicubi, nisi dumtaxat in scholis?

³ Robert W. Frederick, Clarence E. Ragsdale, and Rachel Salisbury, *Directing Learning* (New York, D. Appleton-Century Co., 1938), pp. 219 f.

⁴ For what does it profit them to spend their days in these things which neither at home, nor in the army, nor in business, nor in the cloister, nor in political affairs nor in the church, nor anywhere else are any good to any one—except only in schools?

The following protest was made in early colonial times by William Penn:

We press their memory too soon, and puzzle, strain and load them with words and rules; to know grammar and rhetoric, and a strange tongue or two, that it is ten to one may never be useful to them; leaving their natural genius to mechanical and physical or natural knowledge uncultivated and neglected; which would be of exceeding use and pleasure to them through the whole course of their life. To be sure languages are not to be despised or neglected. But things are still to be preferred.

The current efforts to improve teaching are not the caprice of theoretical psychologists and professors of education. They are merely the inevitable continuance of the effort to improve teaching in the light of better and better knowledge. The movement is welcomed by honest teachers even though it means discarding beloved routines; it will always embarrass and annoy the lazy and incompetent teacher.

The present reform began in the western world in its broad fundamentals approximately one-hundred-fifty years ago and began to affect practice noticeably about thirty years ago; in the United States, it became acute about fifty years ago and changed practices appeared in isolated instances, with more widespread effects from 1920 on.

During the early nineties, the normal schools of the United States introduced the Herbartian "five formal steps" as a lesson formula designed to get away from the conning of isolated facts in a series of "lessons." The learner utilized facts, to be sure, as well as narrative or descriptive materials, or any other necessary subject-matter, but was led to derive therefrom a generalization, a rule, a principle, or an understanding which would be effective in meeting new situations and in controlling conduct. The Herbartian steps became seriously formalized, but they represented a worthy pioneer effort to rescue learning from the routine memorization of facts and to focus attention upon broader outcomes such as understandings, meanings, principles.

Toward the turn of the century McMurtry popularized the term "cold storage" education in reference to the storage in the mind of great masses of fact which might possibly some day prove useful. "But facts, like fish, will spoil if kept too long." More recently, Morrison dubbed as "lesson learning" the mastery of subject matter, the covering of textbooks, without deriving therefrom understandings, meanings, attitudes, appreciations, or abilities which are the true learning products. Facts are learned for themselves and are not utilized in relation to the basic learning products. Morrison coined a neat aphorism when he said, referring to much current school practice, "the pupil learns his lessons but he does not learn." The pupil should, indeed, not learn subject matter but should learn from subject matter or from experience with subject matter.⁵

⁵ "Nothing in education is so astounding as the amount of ignorance it accumulates in the form of inert facts." Henry Adams, *The Education of Henry Adams* (Cambridge, Mass., The Riverside Press, 1918), p. 379.

Still later there appeared the socialized recitation, supervised study, direct method of teaching languages, emphasis upon language habits instead of upon grammar rules, problem-solving, the project, the subject-matter unit, and the functional or experience unit. All of these modern movements tend to focus attention upon the necessity of a wide variety of learning activities instead of memorization alone, and upon a wide variety of usable learning outcomes in place of mastery of facts, the learning of textbooks, the covering of courses. It should be noted in passing that merely shifting from formal procedures to what seem to be modern methods is not sufficient. Projects, problems, and units appear in many places, but the end is still the same—mastery of isolated bits of information. The fundamental implications of the modern procedures are developed throughout this volume.

This account is necessarily brief to the point of superficiality, but nonetheless, it illustrates the fundamental issue. Many other cases can be cited. The revolt begun in the schools of the United States about 1888 with the addresses of Eliot, Harper, and Dewey is a more recent illustration.⁶ During the nineties, education in the United States was at a peak of formalism and verbalism, remoteness from the real life of the nation. At the present writing we are again well into the period of realigning education with life, with consequent disturbance of old ideas about learning.⁷ In this account we are for the moment chiefly concerned with explaining and destroying the misconception that learning consists of memorizing and repeating facts or empty verbalisms.

Emphasis upon a limited concept of learning may effectually prevent the acquisition of many desirable learnings. The ability to reproduce memorized facts, to reproduce what has been read, the ability to outline lectures and readings, the ability to work exercises according to pattern are all legitimate outcomes of learning under given circumstances. To limit learning, however, to these processes and outcomes is not merely to circumscribe the learner and to give him a meager, narrow education, but is actually likely to preclude the acquisition of numerous important and varied outcomes. Testing such learning is obviously done by giving the pupil "more of the same," that is, we ask him to reproduce facts in the book or in the professor's lecture instead of asking him to use these facts in solving a new problem. We ask for outlines of readings or lectures instead of critical reactions to the content. Glib reproduction is accepted. The learner soon succumbs to routine, and acquiescence takes the place of understanding; performance, of learning. It is just here that the error lies when the teacher says smugly and uncritically, "I get results, regardless of highfalutin theories of teaching." Certainly she

⁶ For a highly compact account of this movement see William H. Burton, *Introduction to Education* (New York, D. Appleton-Century Co., 1934), pp. 241-302; 421-432.

⁷ F. T. Spaulding, *High School and Life* (New York, McGraw-Hill, 1938); *What the High Schools Ought to Teach* (Washington, D. C., American Council on Education, 1940).

gets results. She can prove she gets results. The difficulty is that the results are not worth anything. Worse, such results often prevent getting useful and meaningful results. Of course, an occasional student bent on learning in spite of the method of teaching used does react critically or attempt to apply in real situations some of the facts retained, and the results often prove embarrassing to both student and instructor.

Learning activities are numerous and varied. The learning activities in the modern school are numerous and varied, in sharp contrast to the listening, reading, reciting, writing activities of the formal classroom. Some idea of this diversity of learning experiences can be obtained from Mossman's list:⁸

1. Adventuring, exploring, trying, finding out, experimenting, investigating, searching, reaching, inquiring, extending, contemplating, collecting, examining, questioning, proving, asking, studying.
2. Creating, contriving, devising, proposing, constructing, imagining, planning, organizing, thinking, initiating.
3. Cooperating, pooling, suggesting, helping, contributing, outgiving, discussing, refuting, talking, reporting, proposing, sharing, participating, communicating.
4. Judging, evaluating, deciding, considering, concluding, forming an opinion, summarizing, formulating.
5. Consuming, enjoying, receiving, accepting, intaking, being affected, depending upon, listening.
6. Recreating, resting, renewing, playing, singing, dancing, relaxing.
7. Recording, drawing, writing, expressing, painting, sculpturing.
8. Repeating, reciting, practicing, drilling.
9. Obeying, accepting, following, conforming, submitting.
10. Dictating, controlling, ordering, forcing.

This list merely opens up the possibilities for numerous and diversified learning activities and experiences. A preliminary understanding only is the object here. More adequate understanding will develop when the list is expanded in the following chapters. The selection and use of activities appropriate to given situations and outcomes will be elaborated in the chapters on the organization of teaching-learning situations.

Learning outcomes are numerous, varied, and complex. The outcomes of learning in the modern school likewise contrast sharply with those in the traditional school. In place of knowledge in the form of isolated facts, certain commonly useful skills, and memorized formulas, there appear numerous controls of conduct in the form of understandings, attitudes, appreciations, values, special abilities, and skills. Facts are learned, to be sure, but they are learned functionally and as subsidiary to understandings which give the facts their meaning. The various types of outcome defined and illustrated below are not separate and distinct items. We shall see later in the chapter that learning outcomes are com-

⁸ Lois C. Mossman, *The Activity Concept* (New York, The Macmillan Co., 1938), pp. 54-55. By permission of the publishers.

plex and integrate many things. Understandings are related to appreciation and vice versa.

An *understanding* is a *general concept* that results from organizing and interpreting the meanings of various aspects of a given situation; from organizing and interpreting many specific illustrations; from generalizing experience.

Understandings are in the form of generalizations, concepts, principles, theories, abstractions, universals, generic statements. They are general, but they are not "generalities." They are distinctly not the vague, incoherent "general understandings" of the average citizen. They are definite meanings clearly stated in declarative sentences. They vary from broad, general understandings in courses of study to more limited generalizations derived from given units or lesson series. For instance:

Geographic environment vitally conditions the activities of people.

The growing complexity of modern life makes coöperation not only desirable but imperatively necessary.

The architecture for any region, the way men build their homes, churches, or other buildings, depends upon the materials at hand, the climate, the purpose for which the building is intended, and the conception of beauty possessed by the builders.

The development of culture is an evolving process.

Newspapers play a huge part in molding public opinion.

Newspapers carry propaganda as often as they carry news.

Absence of a large middle class in any country predisposes that country to autocratic government and to revolution.

Difficulties in deriving and stating understandings will be specially analyzed in Chapter 10. Literally thousands of illustrations are available and any sampling is hopelessly inadequate, but those listed above will suffice for preliminary contact.

An *appreciation* is a *liking for and tendency to choose*. It is a satisfying emotional response.

These, too, are numerous but much easier to state than understandings. Several different forms are acceptable. A few illustrations would include:

An appreciation of good poetry

An appreciation of the ballet

An appreciation of beauty in nature (or in sculpture, or in music, etc.)

The desire to live an orderly and decent life and the tendency to choose things which contribute to that type of life. (This could be regarded as an attitude as well.)

The appreciation of the contributions of various nations, races, and individuals to the masterpieces of literature (or art, or scientific invention, etc.). Appreciation of these things is distinctly different from understanding of the same things.

The enjoyment of unusual photographic shots and directorial devices (From a unit on moving pictures.)

The desire to make one's home beautiful and tasteful.

Wonder and joy at the evidences of the unseen power of God as manifested in the coming of new life in the world of nature. (This could be regarded as an attitude and also as an understanding.)

An attitude is a relatively constant tendency to act in certain directions and in accord with certain mental patterns. Attitudes may be primarily intellectual (based on knowledge and understanding), or emotional (based on appreciation). Attitudes are sometimes called mind sets, patterns of conduct, etc.

Many of the appreciations cited above could be considered as attitudes also. Illustrations:

An attitude of consideration and respect for other people when attending the theater. (This is manifested by observing such common courtesies as cheerfully taking one's turn in line, not entering late, not standing in front of people who wish to see, not eating candy, not crushing paper, maintaining silence, etc.)

Tolerance and respect for other persons' opinions, together with the maintenance of independence of standards and opinions during discussion

Respect for technical skills and contributions different from one's own (This could be an appreciation as well.)

Attitude of willingness to cooperate. (There are definite understandings underlying cooperation and also appreciations regarding it; the attitude is still another thing.)

Attitude that school rules and regulations should be obeyed. (An accompanying understanding here would be: School rules are necessary and useful in getting things done, avoiding disorder and waste of time.) Here we may comment upon the part played by useless and arbitrary rules in developing antagonistic attitudes on the part of pupils.

Insistence upon reform of legislative machinery which will make it more simple, effective, and democratic

Active tendency to participate in the civic responsibilities of a citizen

Inquisitiveness toward natural and artificial phenomena; in learning how and why natural processes take place

Perseverance in any task which has been accepted

An ability is a generalized power to carry on an integrated complex of related activities. (An ability is difficult to define except in terms of itself. Illustrations will carry the point.)

Ability to read

Ability to spell

Ability to write

These common but highly generalized abilities may be broken up into several dozen subsidiary abilities each of which is a desired outcome of learning. Abilities, for instance:

- to read with acceptable speed and comprehension;
- to grasp at one glance an ever longer group of words;
- to skim;
- to find new materials in the solution of problems;
- to read more rapidly silently than orally; and
- to evaluate what is read.

Before proceeding, it should be noted that many of the abilities listed above either can be classified as skills or can be broken down into more specific skills as we shall see presently. The fragmentary list does, however, indicate the complexity of outcomes in one supposedly simple subject. An even simpler subject—spelling—contains a diversity of outcomes

undreamed of by the average citizen. Understandings, attitudes, abilities, and skills appear as follows:

- Increasing sensitivity to one's own misspelling
- Awareness of society's attitude toward misspelling
- The attitude of desiring to spell correctly
- The development of systematic methods of studying spelling
- The attitude and habit of systematically attempting to determine causes for one's own misspelling

Other general abilities often mentioned in courses and units are:

- Cooperation with others in given undertakings
- To use newspaper and magazine reviews and criticisms in guiding one's selection of motion pictures to see or books to read or plays to attend
- To use logarithms and other mathematical formulas
- To conduct group discussion in orderly fashion
- To be able to check newspaper reports against standards, references, and sources of fact

A *skill is facility in performance* of any given response; it is a relatively fixed, relatively automatic response to similar and recurring situations. Skills may be either mental or motor.

The special abilities referred to above include within them scores and scores of skills. In the general ability to compute, for instance, there are found such minute skills as counting, using tables, adding odd and even numbers, adding two-place numbers, adding columns of more than four, five, or six numbers, measuring, weighing, estimating. What we commonly call addition, subtraction, multiplication, and division have within them a number of specific skills most of which have to be learned.

Reading involves such subsidiary skills as skill in recognizing new words, skill in pronunciation, skill in combining contextual clues in order to interpret unfamiliar words. Other related skills are the skills in using a table of contents, an index, topic headings, footnotes, bibliography. Library skills include the use of the card catalogue, the *Reader's Guide*, the dictionary, book reviews, and similar tools. Skills useful both in securing content from reading material and in organizing outlines are skills in selecting a topic sentence, a summary sentence, and key words. Skills in punctuation, also, are necessary here. The reading of a map in general is an ability, but there are certain specific skills within it such as the reading of symbols for various elevations, types of vegetation, natural resources, cities, and rivers. In the field of mechanic arts, there are any number of subsidiary skills in using certain tools.

Other definitions, which are of interest here, include:

Functional knowledge is an adaptive control of conduct which functions in such way as to make the results of one experience freely available in other experiences. Functional knowledge may be in the form either of understanding or of facts.

A *fact* is any act, event, circumstance, or existence which comes to pass. It is

determined by measuring, counting, identifying, or by describing through consistent use of agreed-upon definitions of terms.

A *value* is the worth, goodness, beauty, or desirability of any person, object, process, or belief. It is determined by the way in which it satisfies our purposes, desires, aspirations, or ideals.

A *behavior pattern* is a characteristic way of reacting to situations. It is an integrated collection of specific habits, understandings, appreciations, and attitudes. A behavior pattern is the way an individual carries over into action the integrated outcomes he is and has been acquiring

The listing of outcomes could be continued for many pages to include the many varied outcomes derived from individual courses, units, or other teaching-learning experiences. Supplementation may take place through class reports as indicated at the end of this section. Further discussion and illustration are in the later chapter on the construction of units.

The implications for teaching. As the full meaning of the foregoing discussion develops, students begin asking what can be done about it. How may one so teach as to avoid these errors? More important, how does one get pupils to engage in genuine learning processes and to achieve useful outcomes? Questions often call for illustration of specific classroom devices or methods. This is especially true of those students who have themselves come through a traditional school and who have never met, until this moment, any other conception of learning than the formal memorize-the-text procedure. These students are often thoroughly bewildered. At this stage of the course, it is wholly impossible to give them an adequate answer. Their own lack of background precludes it, not to mention the complexity of the total answer. This whole volume is designed to develop progressively detailed answers to this and other problems. Nevertheless, enough must be given here to indicate to the student that the problem can in fact be met, and to show him some of the simpler devices. It is also necessary to take advantage of the line of thought which is indicated by the student questions and which will be continuously stimulated, and it is hoped, satisfied as the course develops.

The *first* suggestion is that teachers should consciously break away from the "mastery-of-the-text" concept and give explicit attention to the total range of learning outcomes which might result from given learning situations. This means that teachers should define and describe for themselves the actual understandings, attitudes and appreciations, and skills which might be improved by the learning experience. Teachers far too often do not know either their own objectives or the actual outcomes other than "covering the text" or "following the course of study." This ignorance leads directly to the *second* suggestion: provide a wide variety of learning activities. Deliberately break away from the read-question-recite-from-memory groove and use instead many questions, readings, excursions, viewing of processes and exhibits, committee work, group discussions, construction work, experiments, creative work, and many

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others. The traditional school can be greatly enriched through attention to numerous outcomes and the inclusion of many varied learning activities. The modern school does this as a matter of course. This general discussion is extended in Chapters 10 and 11 particularly and elsewhere through brief discussions.

DISCUSSION QUESTIONS

1. When teachers really understand the objectives of their teaching in the terms set forth in this section, the whole process of teaching takes on a very different aspect. How will it be different?

2. What is the meaning and significance of the statement that we should not learn subject matter but should learn from subject matter?

3. The desirable learning products as briefly introduced in this section may appear in textbooks but far more often they do not. Why not?

4. One author says that mathematics, the various physical and biological sciences are all primarily methods of thinking and only in a secondary sense are they bodies of informational content (a) What relation does this bear to the discussion in this section? (b) What guidance is there for teaching?

5. What is the significance of page 22 in Morrison? Make a point in addition to the one Morrison is obviously making

6. In a certain large city, a teacher was discovered teaching "community civics" who did not know where the city hall was, whether the city had council or commission form of government, who the local political leaders were, and was unaware of a burning issue which at the moment had the city so divided in factions that a special election was necessary. Yet this teacher was an honor graduate of a well-known university, had majored in history, and possessed the requisite hours in education.

a. What obviously are the outcomes of learning for which she is working?

b. Explain as well as you can how such a situation could possibly come about?

c. What questions arise in your mind?

d. Be on the lookout for similar observed situations in this or other fields.

(Note In answering the next two questions, *reference should be constantly to the outcomes of general education only*. That is, answer with reference to those learnings needed by all citizens for the general purposes of living, other than vocational. There are scores of specialized learnings which are desirable for technical and professional pursuits which will be acquired through special courses on upper levels. We are not concerned with these learnings at the moment. Keeping this distinction sharply in mind will eliminate much useless argument, save much time and energy, but more important, will clarify thinking greatly.)

7. Show that useful facts, understandings, or attitudes applicable to the ordinary affairs of life do or do not result from learning:

a. the capitals of all the states;

b. the list of products grown in sub-tropical regions;

c. how to compute cube root;

d. why the United States returned the Boxer indemnity money;

e. how the Gettysburg Address is regarded and why;

f. to recite from memory the Constitution of the United States; pages from *Hamlet*, *Lady of the Lake*, etc.;

g. the argument in Burke's speech;

h. how to dance a quadrille, a fox trot, a rhumba, any current dance form,

- i* how to recognize words in print;
- j* how to remain cool even under provocation to anger;
- k* that the square on the hypotenuse of a right angle triangle equals the sum of the squares on the other two sides.

8. Accepting for the moment without reservation that learning is the acquisition of responses useful in life, then

- a*. Should anything be required in school which shows no outcome in usable response?
 - (1) Give illustrations from current curriculums and school practice of materials and learned outcomes which are of no use anywhere in life.
 - (2) Give illustrations of materials and outcomes which could be acquired and which are clearly useful to all citizens constantly but which are not commonly included in current school curriculums.
- b*. Should there be any placing of knowledge in "cold storage" at all?
 - (1) If the answer is *yes*, how are we to know what things to learn which will be useful later? Could they not be learned and used at present and not reserved for the future?
 - (2) If the answer is *no*, what changes would need to be made in curriculums, materials, and teaching practices as at present operated?

(The problem of deferred values will reappear later in Chapter 3, pages 82-84.)

9. How are we ever to know, in so far as we can know, what subject matter and what outcomes to approve?

10. Billett, page 157, refers to the origin of the classical curriculum as "largely vocational." Most, if not all, of so-called "liberal education" had its origin in useful pursuits. What has this to do with our problem here?

CLASS REPORTS

1. Observe a number of teachers, or one teacher for several successive days. Prepare a brief summary report to be presented to the class citing specific evidences of awareness or lack of it concerning the misconception of learning discussed in this section. Note the teacher's analytic and interpretive questions or the lack of them; her use of pupil experience; use or neglect of real materials; her direction of class discussions; methods of supplementation; etc.

2. Supplement the report with a listing of the various types of learning activities utilized by the children. Make a critical comment upon their appropriateness as used.

3. Modern courses of study are increasingly including statements of objectives: general for a course, subject, center of interest or unit, and specific for actual sample teaching outlines. These objectives when achieved are learning outcomes. Lists of learning activities are also suggested. Examine a few selected modern courses of study and report:

- a*. the kind and form of statement of objectives, general, subject or unit, or other;
- b*. the kind and form of statement of learning activities suggested for the teacher's use;
- c*. one report should compare modern and traditional courses in these respects.

4. Treat in like manner any printed or mimeographed unit outlines available, and preferably the log of a unit which has been taught.

READINGS

- BILLETT, Roy O., *Fundamentals of Secondary School Teaching* (Boston, Houghton Mifflin Company, 1940), pp. 141-143, 153-167. These readings especially good for Questions 7, 8, and 9.
- FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (New York, D Appleton-Century Company, Inc., 1938), pp. 13-15, 24-29
- LEE, J. Murray, and LEE, Dorris M., *The Child and His Curriculum* (New York, D. Appleton-Century Company, Inc., 1940), pp. 215-219.
- MOSSMAN, Lois C., *The Activity Concept* (New York, The Macmillan Company, 1939), pp. 54-55. Incidentally, there is an interesting series of dates on pages 177-184 giving some of the high lights on the development of diverse activities in learning since 1387.
- TIPPETT, James S., and others, *Schools for a Growing Democracy* (Boston, Ginn and Company, 1936). Summarizes "demands of the democratic state" in terms of diverse outcomes. This excellent little book is cited only as a sample of many other similar discussions of rich and varied outcomes

Special

The writer has found that students are almost universally aided in understanding this and the following misconceptions of learning if they read the following reference. Students should be advised to avoid confusion and argument over Morrison's ideas on "permanence" and "mastery". We are here concerned directly only with the nature of learning outcomes.

- MORRISON, Henry C., *The Practice of Teaching in the Secondary School* (Chicago, University of Chicago Press, revised 1931), Chaps. 2, 3, 4, pp. 16-62. Chapter 2 is of particular value for this first misconception.

SECTION 2

THE OUTCOMES OF LEARNING ARE THOUGHT TO BE SIMPLE INSTEAD OF COMPLEX; SINGLE INSTEAD OF NUMEROUS AND VARIED.

(Thought of as purely intellectual, as compartmentalized, as definite and concrete instead of as adaptable responses.)

Analysis and oral discussion of the following questions should be completed before the reading is begun:

1. In one of Kipling's tales there is recounted the struggles of a little boy learning to read. He and his tutor wrestle with the problem long and valiantly, but progress is slow and halting. The process is an unhappy one for both participants. At last the day comes when the tutor says, "You have learned to read" The boy throws down his book, saying, "Now I can read—I shall never read again!"

List several learnings which undoubtedly took place here.

Which of these were consciously sought by the tutor? Which were not? In advance of more technical knowledge on your part, attempt to explain psychologically the total outcome of this incident.

2. In an English class there arose vigorous discussion about aviation. Pupils were asking questions right and left. Finally one asked the teacher if she could tell him how many times an airplane propeller turned per minute (revolutions per minute, or "RPM"). The teacher silenced the whole discussion, saying, "This is an English class, not one in aviation."

List as well as you can what learnings might have taken place (in English, personality, etc.) if the discussion had been encouraged.

List some that may have emerged under the given circumstances.

What would you have done, being ignorant of the answer to this question and on the basis of your present amateur understanding of teaching and learning?

3. A lower-grade geography class became involved in a warm argument as to the specific conditions which brought on rain in their locality. The teacher suggested that they write to the local weather bureau to find out.

List as well as you can several learnings which might emerge from this situation.

Should not the teacher have given the information needed at once? If so, tell why; if not, support that view.

4. Present in some detail illustrations from your own school experience (on any level) showing how learning outcomes emerged which were not within the probable purpose of the teacher. Attempt to show clearly the conditions which accounted for this.

5. Present a similar account showing that certain desirable and consciously desired learnings were inhibited or mutilated by given conditions.

6. Attempt on the basis of present understanding to explain why the principle which seems to be emerging in discussion of these questions is so important.

A young teacher assigned to a school in a remote oil field region of the Southwest arrived to find her school to be a dirty, ramshackle building set in a bare, sun-baked yard. Paint had long since peeled off. The inside was indescribably dirty. Floors, walls, and windows had evidently not been washed for a long time. There were no curtains, pictures, or decorations of any type. Her pupils were to be the difficult-looking children of poor laborers brought in to do the very rough work of the oil field. Truly a dreary prospect! Challenged by the situation, the teacher in the few days remaining before school opened scrubbed and cleaned. After using much soap and water, she bought and hung some bright, inexpensive curtains. She cut attractive pictures from old magazines and placed them about the room. With a few bright-colored decorations of various sorts, a potted plant or two requisitioned from one of the better homes, and some new paint, she gave life and color to the room. Long before the opening hour, the first of her pupils came to school: a bedraggled girl from a squalid cabin stood silently in the doorway and

then entered shyly. She gazed around for some minutes, ignoring the teacher, and then spoke, "Hm, a pretty house what you got here! I think mebbe I likes to live here better than by my house." Happily, expectantly, she entered this beautiful place. This youngster came to school to learn to read and write. Before the first lessons began, she had started to learn other important things—standards of cleanliness, neatness, and beauty. She had begun to respond with various reactions to several aspects of the total environment. Her learning responses were numerous, varied, and eventually complex. They were stimulated by factors seemingly not directly connected with the obvious business of the school—learning reading, writing, and arithmetic. Who can doubt that she worked harder and learned better even these more direct and obvious outcomes than she would have in the formerly dirty, shabby school-room?

At the other end of the educational system may be cited the case of the college student majoring in chemistry. He was constantly at work in the laboratory on problems of his own which grew out of the class work. His fellows scoffed at him, urging him to drop all this extra work for the more worth-while pursuits of the campus. Their chief argument was, "What do you get out of it—you cannot get a grade or extra credit for it. *There is nothing in it for you.*" But there was. This student was acquiring an immense amount of information in his field, increasing his laboratory skills, and more important, was developing a genuine and aggressive intellectual interest in the field of industrial chemistry. He was learning much more than did his classmates and far more than the instructor set out to teach.

Responses may be positive or negative. The foregoing stories illustrate a fundamental fact about learning: pupil responses to a given situation are numerous and not single, likely to be complex instead of simple. The additional responses may be negative or positive. The boy in Kipling's story learned to read, but he also learned to detest reading, to avoid reading as a source of pleasure, to avoid reading as a source of information in solving life problems. These results were all secured by the teacher whether he willed it or not. Many adults acquired in school their present dislike for literature, art, and music. Part of this, in some cases, is owing to the nature of the individual, but much of it is unquestionably owing to the analytic methods used in school. Literature, which should be taught for enjoyment, has been taught as if literary production or critical evaluation were the desired outcomes. These aims are obviously pointless in all general classes in the fields mentioned. In addition, so-called "good literature" has been forced in adult form on immature secondary-school pupils. Advanced literary forms have been forced on many high-school students with the reading abilities and interests of sixth- or eighth-grade pupils. The inevitable result has been to conceal the enjoyment beneath a tangle of analysis and criticism. The

methods of teaching literature used in many high schools and colleges are so different from the method a normal mind would apply in using the compositions for enjoyment that ennui, disgust, and antagonism result—are learned.

On the positive side, note that pupils may learn the ordinary content of history and at the same time learn to apply historical generalizations to current problems. Study of the stories of Nathan Hale and Benedict Arnold may result in the development of several valuable understandings and appreciations quite apart from the historical facts. On the other hand, this natural process of making numerous and varied learning responses to a situation may be inhibited by poor teaching. Students may go through courses in civics and government but fail to acquire the ideals, attitudes, and habits of good citizenship. Many high-school classes (and women's clubs) discuss "current events" vigorously but do not care whether the local community is well governed or not. It is quite possible to study grammar and get good grades for repeating the rules but be unable to write a letter which will convey thought.

The characteristic of learning—that responses are diverse and are made simultaneously to more than one factor in the learning situation, and may be negative as well as positive—has never had deserved prominence until very recently. It now seems to be permeating the work of alert elementary teachers and more slowly gaining recognition on higher levels. The student, be he kindergartner or collegian, learns more than the text, the assignment, or what the teacher sets out to give. Sometimes the additional learnings are desirable; sometimes, highly detrimental. The key is the teacher's method and manipulation of the total learning situation. Every one has noted with the passing years a distinct change in the attitude of children, particularly in the lower grades, toward school.⁹ Today eager youngsters hating to miss any part of the school program replace the

... Whining school-boy, with his satchel
And shining morning face, creeping like snail
Unwillingly to school.

Modern methods teach children more than "the three R's." They are teaching liking for school; pride in accomplishment; standards of conduct; ability to evaluate and use what is learned; willingness to persist in the face of difficulty; the more complex intellectual and emotional learnings such as generalized attitudes and ideals: neatness and accuracy, or the reverse; attitudes toward one's work, one's classmates and teachers; likes and dislikes for persons, processes, and ideas. True, carry-

⁹ Claire T. Zye, and others, *Willingly to School* (New York, Round Table Press, 1934). An interesting photographic record of activities in the new school

Albion H. Horrall, and others, *Let's Go to School* (New York, McGraw-Hill Book Co., 1938)

Were We Guinea Pigs? Ohio State University High School, Class of 1938 (New York, Henry Holt, 1938).

over is not automatic, but transfer can be enhanced by proper teaching.

The implications for teaching. Again as with the first misconception, a few general suggestions only can be given to satisfy the student's inquiries at this point. The general principle is that methods of teaching must take into account far, far more than do the simple procedures commonly associated with school-keeping. In fact, it seems that the bare routine facts which the school has insisted upon for generations can be "taught" and "learned" under almost any method. Certainly, if normal, children seem to acquire eventually enough of reading, writing, and arithmetic in any and all schools to get along. To be sure, the time of acquisition will differ greatly from method to method, and in many cases pupils get little else. In order to achieve the more subtle learning outcomes and to avoid the undesirable ones, the teacher must take into account *all* the factors in the learning situation. The very appearance of the classroom, the decorations, the kind and amount of instructional materials, the teacher's attitude and temperament, her appearance and dress, the state of health of the pupil, the type of home from which he comes, the security and peace of that home or the lack of it, the type of rewards offered by the school, the provision for successes by pupils—all these and scores of others need to be accounted for by the teacher. This is all the more important when it is remembered that while some of the learnings desired will be incidental to the chief purpose motivating the learner, they must be matters of conscious consideration by the teacher. The teacher will utilize and encourage all spontaneous and self-motivated learning. She will be sympathetic with difficulties, with errors, and with slow progress. She will encourage and accept questions from pupils. She will know that when pupils are working purposefully on problems of value to themselves, various types of learning outcomes are sure to develop. The numerous and varied learning outcomes must be made matters of conscious concern and planning by the teacher.

CLASS REPORTS

This particular misconception of learning and its correction are problems almost too difficult for the beginning student to report upon. It is necessary to have wider acquaintance with teaching-learning situations than is probably possessed at this point. Nevertheless, preliminary observations may be made.

Observe a number of teachers or one teacher for some days. Prepare a brief summary report citing specific evidences of the teacher's awareness or lack of it concerning this misconception. Note teacher-manipulation of the total environment, her sensitivity to pupil-personality and reaction, her attitude toward success, failure, effort, and the like, her reaction to irregularities or disturbances, her knowledge so far as it can be seen, of the home conditions and out-of-school life of her pupils. An astonishing number of these can be observed during the ordinary course of a lesson or activity period.

READINGS

- HOPKINS, L. Thomas, *Interaction* (Boston, D. C. Heath and Company, 1941), pp. 348-359. These pages contain the best available reading on this problem to date. The chapter containing them deals with evaluation, but this emphasis may be omitted by the student until evaluation is taken up later in this volume. For the moment, read for understanding of the complexity of outcomes. This reading should be done by every student, but it will be found difficult by those of less ability and background.
- KILPATRICK, William H., *Foundations of Method* (New York, The Macmillan Company, 1925), Chaps. 1, 8, and 9. An older reference but very valuable. Written in conversational style which antagonizes some and attracts other students. Much can be skimmed. Easier for less able students.
- DEWEY, John, *Experience and Education* (New York, The Macmillan Company, 1938), pp. 12-17. Brief analysis of general principles involved here.

SECTION 3

THE TYPES OF LEARNING OUTCOME WHICH CONTROL GIVEN SITUATIONS ARE OFTEN MISINTERPRETED

(Facts and verbalisms are accepted as satisfactory outcomes when certain abilities, habits, or skills are the necessary outcomes.)

The limitation of learning process to simple memorization, and the failure to recognize the complexity of learning outcomes leads directly to an even more serious error concerning learning and teaching. Widespread confusion is found regarding the power of certain learning products to control conduct in the world. Simple everyday illustrations are found in the sincere beliefs of many citizens and teachers that memorizing the Constitution will produce good citizens; that compulsory flag saluting produces patriotism; that learning much formal grammar aids individuals in writing and speaking good English; that the accumulation of great masses of fact will insure good thinking; that "hard" subjects train attention and concentration; that Latin and algebra train one to think.

Memorizing the Constitution produces the ability to repeat the Constitution, and has very little to do with producing the understandings, attitudes, and abilities necessary to citizenship. Good citizenship and patriotism alike are based on abilities, ideals and meanings, and patterns of action. To learn to be good citizens, pupils must perform the various activities making up good community living. The learning products must be, not memorized formulas, but definite attitudes and habits of co-operation, tolerance, working together in groups, participation in give-and-take discussion, willingness to accept group decisions, ability to face and analyze change, and many others. Citizenship involves far more than the nominating of class officers, voting, and holding formal meetings under rules of order. Ability to patter glibly that "the government is made up of three departments, legislative, judicial, and executive," and the ability to run through the formula for amending the Constitution

have practically nothing at all to do with understanding our government. A study of pressure groups, of factors coming between the citizen and his government, of factors affecting public opinion; studies of the reliability of newspapers, of local governmental problems, crime, police corruption, of the rise of new forms of municipal government such as the city manager and cabinet, of civil service reform, of deficiencies in our own democracy as well as of its splendid achievements, of community health and disease control, an analysis of local governmental organizations and problems at first hand—all these are far more likely to produce functioning learning.

An illustration of confusion between types. Before taking up scientific evidence, we may cite one incident showing how disastrously this particular blunder concerning learning can result. In competition for a substantial prize offered by civic bodies, a high-school student submitted a remarkably fine "Civic Code" setting forth the ideals, duties, and functions of the good citizen. This code was widely distributed. The student was duly acclaimed as having learned remarkably well the basic things necessary to good citizenship. His teachers of civics and history were given credit for having produced desirable learning products. A few months after graduation from high school, this boy was caught red-handed planting a bomb in the office of the leading newspaper. At the police station, it was discovered that he had for some time been associating with and participating in the escapades of a gang of young hoodlums and bootleggers. He had been selling narcotics to high-school students at the time he wrote the splendid code of the good citizen! The first reaction is to say that the boy had not really learned anything about citizenship. Not quite. He had unquestionably learned—but not the appropriate learnings. He had learned the proper *words* to say in response to given situations. He had learned *verbalisms* about citizenship. He had not learned the *understandings, attitudes, abilities, and patterns of behavior which make up citizenship in action*. The trouble was not that he had not learned, but that he had learned the wrong kind of response for the life situation.

But, says the naïve citizen, how can one possibly use these fine-sounding statements and still have no meanings to go with them? How can one act one way and make excellent statements upholding quite other behavior? We need not at this stage go into intricate psychological explanations. The fact is plain; we do this thing regularly and extensively. The social, political, and religious discussions of the average citizen around the dinner table, around the fireplace, in commuters' trains, in clubs, wherever groups meet, are largely made up of meaningless verbalism. As a further and ironic illustration, we may note that the average citizen recognizes this clearly even as he engages in this practice. He criticizes "lip service," "clap-trap," and "empty words." Unfortunately, these things are present only in his friends and neighbors, in the opposite political

party, the other church, sometimes in his wife, but never in himself.

Psychologically, it is simple and easy to say one thing and to act otherwise. The practice is even socially acceptable, sometimes demanded; however, besides perpetuating ignorance and non-thinking, it is destructive of social and moral values—though this is not so easy to see. The verbalisms are used to cover up and gloss over reprehensible conditions in social intercourse, in the industrial world, in the church, and elsewhere. It is by no means far-fetched to say that this intellectual characteristic is one of the basic evils underlying the present ills of Western society. We may digress a moment to comment upon a widely used, broad, and general argument against modern education: "Traditional education cannot be so bad since all our successful men of today were trained under it." A five-pronged analysis will answer this naïve and uncritical statement. First, let us see if, in the management of our society, we have been so successful after all. Second, and this might have come first, let us define "successful" more critically and then examine the situation. Third, let us study the cases of men who were truly successful in the social and moral sense and note how many of them openly revolted against the traditional education they had to endure; how many flatly refused to stay in school and take it. Fourth, let us see how many men deemed socially and morally successful attained their fame through lifelong battles to improve the sorry type of education available. Fifth, how do we account for the huge numbers who were not notably successful but who received the same education as the successful men?

What has all this widespread discussion to do with our original topic, learning? The formal traditional school which accepts verbalisms as end results, which imposes verbalisms on pupils, actually educates for this falseness of life. Pupil reports copied bodily and containing words which could not possibly have meaning for those pupils are accepted without question. Oral statements which are obviously without any meaningful content are accepted without question or analysis. Untold numbers of teachers and curriculums are perpetuating this intellectual blunder. Fortunately, modern curriculums and increasing numbers of modern teachers are vigorously correcting the situation.

Too great reliance on intellectual verbalism, on isolated skill learning. The school has traditionally relied upon intellectual understandings or meanings as the proper learning products with which an individual may meet his life problems successfully. The error of conceiving learning as memorization of subject matter in books is at the root of this difficulty. The school has traditionally neglected other types of outcomes such as attitudes, appreciations, and particularly habits, skills, and patterns of behavior.¹⁰ In the case of the "Civic Code," cited above, the school

¹⁰ An interesting and provocative book by a layman discusses this general point and in fact the general theme of this chapter. See Gove Hambidge, *New Aims in Education* (New York, Whittlesey House, 1940).

supplied ample intellectual learning, assuming that this would control emotional or moral situations. The school completely neglected the specific attitudes, the definite mechanisms, the general and specific habits and patterns of action which make up citizenship. To know what is right is one thing. To wish to do right and to possess the habits of right conduct are two quite different things. Of course, there is overlap and transfer as will be shown a few pages further on.

Skills learned in isolation do not always function in real situations. Commonplace illustrations are found in the pupils who spell words correctly in columns in the spelling lessons but misspell the same words in compositions. Many pupils can add, subtract, multiply, and divide almost any given set of numbers, but they still fail miserably in problem-solving. Skill in addition is one type of learning. Ability to judge when to add is a wholly different one. Both must be learned, preferably in functional situations. A pupil has not "learned to add" until he has acquired both types of learning product.

Many parents and teachers are proud that their children can "say the multiplication tables." Very often, however, some of these children cannot multiply well in real situations. It is much better to teach children to multiply in functional situations than to "say the multiplication tables." Later the children will probably construct the tables for themselves. That is the way the tables were made in the first place by bright, mature adults. Again we have an illustration of forcing subject-matter forms constructed by mature adults on immature children.

That this splitting of learnings and misconception of the power of certain learnings to control conduct can be extreme is illustrated by the following case. A child was found who could add, multiply, subtract, or divide accurately when told what to do. Left to herself she was likely to subtract numbers meant to be multiplied or divided, or vice versa. Since she passed "standard tests" teachers and parents were satisfied. But she was unable to use these skills in real situations. Oral diagnosis elicited the following statement:

I know what to do by looking at the examples. If there are only two numbers in the reading, I subtract. If there are lots of numbers, I add. But if there are just two numbers and one is littler than the other, then it is a hard problem. I divide to see if they come out even, but if they don't, I multiply.

This is an extreme case, to be sure, but there do appear many children who say, "If I only knew what kind of problem this was, I could work it." They have acquired some learnings but not the necessary ones.

Scientific evidence that one learning product does not guarantee another. Can these incidents and common-sense generalizations be confirmed by scientific data? Yes, a very large number of investigations may be found in the literature. An extremely brief illustrative sampling follows. For instance, one of the most persistent claims of traditional

teachers is that "thorough study of grammar" is a guarantee of good language usage. The claim persists in the face of scientific evidence to the contrary accumulated over a period of nearly a third of a century.¹¹ There is not an iota of evidence anywhere to support this claim! There is a huge body of evidence showing that for most pupils there is no connection between knowledge of the rules of grammar and good language usage. In fact, knowledge of grammar correlates no more closely with composition than does any other school subject. Learning formal grammar has no immediate transfer effect on applied English grammar or functional grammar. The brighter pupils do generalize rules in various fields, including grammar, and apply them—when they remember to do so! In one study it was shown that pupils given four years of formal grammar in high school steadily improved their ability to define and pick out grammatical terms, to parse and analyze sentences. These pupils did not, however, improve in oral and written usage. Control groups given instruction in language usage steadily improved their ability to speak and write well, though they knew a minimum of grammar.

Another illustration of confusion between learning products is seen in the claim that "learning" huge masses of fact first is a necessary foundation for thinking. This statement does not come from the "text-covering" teacher alone, the one who crams his pupils, nor from the teacher who is rationalizing his inability to do anything else, but from many who should know better. Facts are necessary to thinking, but the facts necessary to thinking will be learned better during the thinking or problem-solving in a given difficulty. Facts and thinking are learned functionally and in part simultaneously. It is further claimed that pupils who know the great masses of facts will be able to think well about and with these facts. A number of important scientific investigations flatly contradict these ideas. Tyler¹² found the correlation between informa-

¹¹ J. Paul Leonard, "The Effect of Recent Research upon the Selection and Placement of Items of Grammar in Secondary School Curriculum," *Journal of Educational Research*, Vol. 31 (April, 1938), pp. 599-607.

Ellen Fiegner, "Grammar Approach vs. Thought Approach in Teaching Sentence Structure," *The English Journal*, Vol. 28 (September, 1939), pp. 518-526; Vol. 29 (October, 1940), pp. 653-655.

Robert C. Pooley, "English Language and Grammar," *Review of Educational Research*, Vol. 4 (April, 1934), pp. 146-147, 218-220; *op. cit.*, Vol. 7 (April, 1937), pp. 135-138.

H. N. Rivlin, *Functional Grammar*, Contributions to Education, No. 435 (New York, Teachers College, Bureau of Publications, 1930).

Dora V. Smith, "English Grammar Again," *The English Journal*, Vol. 27 (October, 1938), pp. 643-9; "The Contributions of Research to Teaching and Curriculum-making in English—July, 1934, to July, 1937," *op. cit.*, Vol. 27 (April and May, 1938), pp. 295-311, 409-420.

¹² Ralph Tyler, "Measuring the Ability to Infer," *Educational Research Bulletin*, Vol. 9 (November 19, 1930), pp. 475-480. Published by Ohio State University at Columbus, Ohio.

tion and ability to infer to be only .29. Judd¹³ has shown the necessity of teaching directly for the various abilities and skills in thinking if they are to be achieved. Tyler,¹⁴ Eurich,¹⁵ Brueckner,¹⁶ and others have demonstrated the necessity of testing for all of the major desired outcomes. Testing which shows the presence of some outcomes does not guarantee that others are also present. Each must be taught directly and tested for itself. The acquisition of facts or knowledge does not guarantee understandings, meanings, or abilities to use the facts. The acquisition of skills and processes does not necessarily bring with it desirable understandings and meanings which often need to be correlated with the processes. Many investigations show that students on both upper- and lower-school levels do not acquire the abilities of scientific procedure merely through taking science courses as taught at present.¹⁷

Transfer between learning products. The foregoing might seem to imply that all learning is specific and that certain learnings alone will control given life situations. Nothing could be further from the truth. *First*, common sense shows that there is overlap between many everyday learnings in their ability to function in real situations. It is well known that facts and information do actually control behavior, very well for certain types of intelligence and in certain types of situations. In fact, as indicated above, emotional controls will often direct behavior in direct defiance of the facts. *Second*, there are reliable scientific evidences that some transfer does take place under given conditions, that is, that various learning outcomes overlap in ability to control life situations.

For instance, returning to the grammar-language issue, it has been proved that a study of Latin will increase the bright student's English vocabulary, especially his knowledge of words derived from Latin, *but only when the methods of instruction are designed to secure this transfer*.¹⁸ Dull students do not profit. In another study,¹⁹ not only was no transfer secured, but the greatest vocabulary gains were made by the pupils who studied no foreign language at all! Even graduate students

¹³ Charles H. Judd, and others. *Education as the Cultivation of the Higher Mental Processes* (New York, The Macmillan Co., 1936).

¹⁴ Ralph Tyler, *Constructing Achievement Tests* (Columbus, Ohio, Ohio State University Press, 1934), pp. 6-7.

¹⁵ A. E. Eurich, in *Studies in College Examinations* (Minneapolis, Minn., University of Minnesota Press, 1936), pp. 51-66.

¹⁶ Leo J. Brueckner, "Intercorrelations of Arithmetic Abilities," *Journal of Experimental Education*, Vol. 3, pp. 42-44.

¹⁷ Francis D. Curtis, *Third Digest of Investigations in the Teaching of Science* (Philadelphia, P. Blakiston Co., 1939), p. 279.

¹⁸ S. L. Pressey, *Psychology and the New Education* (New York, Harper & Brothers, 1933), pp. 500-501.

¹⁹ Clifford Woody, "The Influence of the Teaching of First-Year French on the Acquisition of English Vocabulary," *Studies in Modern Language Teaching* (New York, The Macmillan Co., 1930), Vol. 17, pp. 149-184.

will fail to transfer simple principles. In one experiment²⁰ only 6 per cent failed to square $x + y$ correctly, but 28 per cent failed to carry the principle over to the squaring of $b_1 + b_2$. It has been shown that if one is to learn to define accurately and to use definitions properly there must be definite critical analysis of the features of a definition. Mere drill in defining has little effect.

The flexibility and adaptability, that is the wider use of given learning products is decidedly enhanced by (a) deliberately teaching for transfer or generalizing,²¹ (b) using lifelike situations in teaching, (c) providing for much application.

Transfer is also greatly affected by (d) the intelligence level of the learner. One important study showed that students of low I.Q. tend to improve in English more adequately if they do *not* study a foreign language; students of average I.Q. do about as well with or without foreign language study; and the pupils with high intelligence show improvement in English as a result of transfer from the study of foreign language.²² Many other experiments, which need not be cited here, show clearly the relation of intelligence to transfer. Still others indicate that similarity between the situations—original learning and transfer situation—is a factor.²³

Variations among pupils in transfer. Morrison described in interesting fashion certain significant differences among students in their reactions to traditional curriculums. If pupils are first traditionally tested on assigned material and then again genuinely tested for functional learning as exemplified in handling new materials or situations, three types of pupils are discovered.²⁴ The first, which Morrison calls the *lesson learner*, type, makes excellent grades on prepared material, that is, a good daily showing on the assignment. These pupils, however, show no independent power on new material. They can read prepared assignments in French, but they cannot read French otherwise; they can work assigned exercises in mathematics, but they cannot recognize real situations which call for the application of the mathematical principles involved. These are the pupils who say, "What do I do next?" When pressed for interpretation or implication, they retreat behind the statement, "That is what the

²⁰ E. L. Thorndike, "The Effect of Changed Data upon Reasoning," *Journal of Experimental Psychology*, Vol. 5, 1922, pp. 33-38.

²¹ G. P. Meredith, "Consciousness of Method as a Means of Transfer of Training," *Forum of Education*, Vol. 5, 1927, pp. 37-45.

²² O. H. Werner, "The Influence of the Study of Modern Foreign Languages on the Development of Desirable Abilities in English," *Studies in Modern Language Teaching* (New York, The Macmillan Co., 1930), Vol. 17, pp. 97-145. Also, M. N. Woodring, "A Study of the Quality of English in Latin Translations," *Contributions to Education*, No. 187 (New York, Bureau of Publications, Teachers College, Columbia University, 1925).

²³ Students wishing further study of the problem of transfer will note the special assignment at the end of this section.

²⁴ Henry C. Morrison, *The Practice of Teaching in the Secondary Schools* (Chicago, University of Chicago Press, revised edition, 1931), pp. 57 ff.

book said." These pupils have learned their lessons, but they have not learned. The second group is designated the *transfer type*, since there is evidently some transfer from the daily preparation activities to real situations. In preparing the assignments, in doing the exercises, in studying the lessons, these students do actually acquire the desired learning product, whatever it may be in the given case. As indicated in preceding paragraphs, good teaching will aid this type. Transfer-type pupils do turn up under even the poorest kind of teaching. Under ordinary conditions the number is small. The third group Morrison calls the *direct learners*. Their processes are not easily explained. These pupils make a poor showing on the traditional school tasks; they do assignments badly; their recitations are distinctly unacceptable. Oddly enough, they do acquire genuine learning products and can demonstrate them. When tested in real situations, on new materials, and in lifelike cases, they manifest real power. They have achieved functional learning by direct processes of their own. Many of them are ill adapted to traditional school conditions, some so much so that they become "problem cases." Often the fault lies with the school instead of the pupil. It is from this group that come many of the individuals who were conspicuous school failures but who are equally conspicuous for genuine success in life.

The implications for teaching. It is clear that the only way to be sure that the numerous and diverse learning products are achieved is to teach for them. There is increasingly among teachers a tendency to set down explicitly the desired learnings. We have too long simply taught and hoped that certain outcomes would eventuate. There is increasing understanding of the nature and power of different types of outcomes. We need not repeat what was said above about teaching for transfer. This involves giving practice in generalizing, in applying generalizations to new situations. Compartmentalized subject matter will be minimized and lifelike situations increasingly used in teaching. Pupils will be made conscious of the interrelations of knowledge. Attitudes and ideals likewise will be made objective. Finally, it will be recognized that transfer is never complete nor automatic.

DISCUSSION QUESTIONS

1. Scores of pupils have no idea what they are saying when repeating "the flag salute. Asked to write it out, there appear such expressions: I pejor legens; I plag alegins; I pledge a legion; to the Republicans; one country invisable; one country inavisable; with liberty and jesters.

Show how this illustrates a number of misconceptions of learning.

How could this be corrected, granting that we should retain the constant compulsory repetition of the salute?

Suggest a number of more effective ways of developing reverence and love for the flag.

2. At a college gathering a professor of literature stated that vaccination was nonsense. A medical professor² outlined in simple terms evidence to the contrary, but he was told courteously that nonetheless vaccination was foolish and ineffective.

3. A candidate for teaching completes the required courses in education with a major in science. He is certificated to teach science. He is wholly ignorant, however, of what it means to be scientific.

4. Some years ago the application of a student for a well-paid fellowship was refused because his grades were far below the required level. Personal reports indicated generally low-level attention, lack of methods of attack, and lack of persistence. Learning of this, the student came and pleaded to be accepted. He admitted frankly that his grades were low because he had gone out for campus activities, had enjoyed college life, and had put his attention on gaining benefits from college other than those derived from the classroom.

He said that he knew he could do the work if given the fellowship; he was settling down now and would dig in; he would study because it was easy for him; he would get his work done and on time; he would faithfully turn in the required reports. He was told, as kindly as possible, that in reality he would not dig in; he would not be able to do the work, he would not be able to organize and compile the detailed reports, even though he was given full credit for sincerity in saying and believing that he would do these things.

The instructor explained that he had had four years of excellent training in not digging in, in not studying, in not finishing on time, in not attacking problems that were difficult and complex. "But," said the student, "that doesn't make any difference now. I know I can do the work."

5. Duplicate the story of the boy and the civic code, illustrating the error of misconceiving the use and power of certain learning products

6. Observe a teacher or a number of teachers for evidence of awareness or

Is this man likely to be wholly, partially, or not at all a competent professor of literature?

What does it mean to be scientific?

Does it make any difference for his teaching whether he understands the "scientific attitude" or not?

Should his training in science affect in any way his views in art, religion, ethics, economics, and politics? Why, or why not?

How could he major in science and yet be "unscientific"?

Explain the instructor's apparently hard-hearted attitude in terms of the accepted definition of learning

Construct a brief statement setting forth what you think the student believed about the nature of learning, of the ability to do, to organize, etc.

ignorance of this misconception. The problem is subtle and complex, but effort to recognize evidences will aid in understanding. Prepare a report to be made in class. Look for the use of words beyond comprehension of pupils; of the acceptance of reports from pupils which obviously have no meaning for the pupil; for careful checking to see that pupils do understand the teacher's explanations and their classmates' reports; of skills drilled in isolation with no reason in use. Watch for careful definition by the teacher of her objectives in contrast with vague, hopeful, general statements as to desired outcomes. Watch for use of life situations and discussion of real problems. Watch for evidences of transfer and teaching for transfer.

7. The direct-learner type of pupil achieves functional learnings in a lesson-learning school. How do you account for this? .

READINGS

FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (New York, D. Appleton-Century Company, Inc., 1938), Chap. 6, pp. 110-128, is an excellent supplement for this section. Probably only similar discussion available. Pages 459-492 of Chapter 24 deal with problem-solving and for that type discuss admirably the implications of this section.

Special References on the Transfer of Training

(Some student groups will need further quick reading on transfer. The following references are secondary treatments and will serve the purposes of most groups. Original sources are easily traceable through the footnotes in these secondary summaries and also in the library.)

BILLETT, Roy O., *Fundamentals of Secondary School Teaching* (Boston, Houghton Mifflin Company, 1940), pp. 153-167.

BURTON, William H., *Introduction to Education* (New York, D. Appleton-Century Company, Inc., 1934), pp. 403-408.

COMMINS, W. D., *Principles of Educational Psychology* (New York, The Ronald Press Company, 1937), Chap. 14.

FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning*. See full citation above.

Implications of Research for the Classroom Teacher, 1939 Yearbook of the Department of Classroom Teachers (with American Educational Research Association). Scattered references to be found through Chapters 8-14, particularly page 116.

LEE, J. Murray, and LEE, Dorris, *The Child and his Curriculum* (New York, D. Appleton-Century Company, Inc., 1940), pp. 138-141.

Class Reports on Transfer of Training

Students who need further acquaintance with the facts of transfer will find that reports on investigations within their own major subject field will be interesting and particularly enlightening. For instance, there have been scores of studies of transfer in the field of mathematics. Many have been done with Latin as a base; others use modern foreign languages. Studies on grammar and transfer would fill a small book.

Individual students or small committees may select a subject area and summarize a number of selected experiments. Various compiled summaries of references are available. These should be supplemented by current references from psychological and educational journals.

SECTION 4

THE SYMBOLS OF LEARNING ARE OFTEN CONFUSED WITH AND
MISTAKEN FOR THE OUTCOMES OF LEARNING

(Marks, credits, courses passed, ability to repeat instead of changed behavior, are accepted as evidence of learning.)

Unprepared discussion of the following questions will serve as an introduction to the material which follows.

1. Morrison relates that a student called into conference because of unusually bad English in his written papers answered the criticisms by saying, "But I have always had good marks in English in both high school and college." When he was shown specific illustrations of incompetent sentences and absurd grammatical constructions, he tried to settle the matter by saying, "I will get my English grades from the registrar's office and bring them to you."

If this student had been asked to define learning and had honestly tried to construct a definition, what would he probably have said? Confine your answer sharply to the facts revealed in the adjoining paragraph.

How do you account for "good grades in English" coupled with poor performance in writing and speaking the language?

The instructor and the student were not speaking the same language. Show wherein they were not.

2. What is meant by a "gentleman's grade" as the term is commonly used in many colleges? (If you have never heard this expression, what do you think it means?)

What do those who seek gentlemen's grades believe learning to be?

What do they see as the purpose of the school?

What do they miss or fail to acquire?

What responsibility does the school have for this situation and for curing it?

3. A curious paradox is to be noted in the attitudes of many people in general toward education. They sneer at "book learning" but spend money for it nevertheless. They sneer at the educated man but insist that their children get an education. Other similar illustrations could be given. These various contradictory attitudes are manifested at different times by one and the same group.

How do you explain this odd and paradoxical situation?

Can you analyze the situation and differentiate some elements justifying the criticism and distrust of education?

What, really, is the fundamental criticism and cause for this distrust?

4. In all country towns there are certain individuals whose erudition is respected. They are referred to as "well posted." Sometimes these people are intelligent and successful members of the community. In many instances they are distinctly neither successful financially nor leaders in the community—but they are "well posted."

What is the matter in the latter case—in terms of our present discussion? Can you describe cases from your own observation illustrating the type mentioned?

Evils resulting from confusion between learning and the mark received. The school which sees learning—both process and product—as the memorization of facts and the acquisition of simple routine skills in isolation from use naturally tests learning by asking for repetition. A number of investigations²⁵ have been made showing that the kind of test given has a definite effect upon the kind of learning. Teachers and students work for the thing which will satisfy the test. Tests of memory or of performance are easily marked. The student comes to attach very great importance to the mark since the school itself values it so highly. Students work for marks, any and all methods are utilized, if only the mark is won. Functional learning is lost to sight—if in fact it was ever present—in some of the situations where marks dominate and certain definite evils follow this situation.

First, teachers, pupils, and the public fall into the error of thinking of the mark as a representation or symbol for some actual, valuable, functioning learning product. Recently a petition bearing several thousand signatures was presented in Boston against a modernized marking system in one of the high schools and demanding the return of the former percentage system, which, said the petitioners, "is better because the percentage marks given really mean something" in terms of pupil achievement. On the contrary, this of all the possible systems is the most absurd. It is practically impossible to make it mean anything sensible, as will be shown in the later chapter on marking. All traditional systems of marks are arbitrary and unrelated to functional learning; marks often

²⁵ F. S. Betten, "Morality of our Grade Giving," *Catholic School Journal*, Vol. 38 (November, 1938), p. 264.

E. C. Class, "The Effect of the Kind of Test Announcement on Students' Preparation," *Journal of Educational Research*, Vol. 28 (January, 1935), pp. 358-362.

H. R. Douglass and M. Tallmadge, "How University Students Prepare for New Type Examinations," *School and Society*, Vol. 39 (March 10, 1934), pp. 318-320.

L. A. Kirkendall, "Teaching for Marks," *School and Society*, Vol. 49 (May 20, 1939), pp. 642-644.

R. W. Edminton, "Effects of Emphasizing how to Learn upon Course Content and School Marks," *Journal of Educational Psychology*, Vol. 28 (May, 1937), pp. 371-381.

Leonard Carmichael, "Relationship between the Psychology of Learning and the Psychology of Testing," *School and Society*, Vol. 31 (May 24, 1930), pp. 687-693.

Harry C. McKown, *How to Pass a Written Examination* (New York, McGraw-Hill Book Co., 1943).

Paul W. Terry, "How Students Study for Three Types of Tests," *Journal of Educational Research*, Vol. 27 (January, 1934), pp. 333-343; "How Students Review for Objective and Essay Tests," *Elementary School Journal*, Vol. 33 (April, 1933), pp. 592-603.

represent only the teacher's estimate or guess as to how well the pupil has done certain things.

Second, making the symbol the important thing inevitably results in a narrow conception of education and learning. The simple, limited outcomes are easily marked. The complex, subtle, and far more important learning achievements do not lend themselves readily to marking. The mark stands for facts memorized, for the pupil's ability to follow directions, to do as he is told, to perform certain routine skills in isolation from real use.

Third, definitely undesirable learning products result. The ideals of cramming and cribbing are not the worst of these. Cheating is an inevitable result of confusing symbol with learning. Catering to the personal views and the temperamental whims of teachers, and even resorting to open flattery, are methods of obtaining marks without any reference to learning achievements. Cramming and cheating are rendered quite impossible when functional learning achievements are evaluated in real situations and "marked" by means of descriptions.

Fourth, and especially with young learners, confusion, frustration, and mistrust are serious.

Special evils of the "passing grade." Emphasis upon this arbitrary hurdle has its own evils. The passing-grade concept is contrary to all the known facts about growth, which is continuous.²⁶ It is contrary to all we know about desirable learning achievement. It must inevitably be based on subject-matter standards instead of upon functional learning.

The resultant evils are serious. The "get by" complex is inevitable. Even good students come to work just enough to get a passing grade. The result is definite training in habits of half-effort and half-attention, in bluffing, and in acceptance of mediocre standards. Students working for passing grades never get the training which attends a vigorous and sustained attack upon problems of their own choosing, the outcomes of which are intrinsically valuable to the student. At the other end of the scale the slow or dull pupil is discouraged and antagonized in attempting to make a passing grade which is quite beyond his capacity or rate of learning—even though he is doing eminently satisfactory learning for his ability and rate. Untold numbers of earnest, sincere, hard-working but slow or dull pupils have been driven out of school and denied an education because of an arbitrary and fanciful thing—the passing grade. But, says the (so-called) practical teacher, how could we operate schools without passing grades? Happily, many places are doing it.

Marks as indications of success. The question may be asked: Are not marks, after all, indications of valuable learnings? If a student works for high marks, does he not learn? Not necessarily so as schools are at present constituted. It is true that statistical studies show that except for some commercial pursuits—and contrary to public opinion—the high scholar-

²⁶ See Chapter 5.

ship man in college is in fact the man who succeeds best in life. This is not the same thing as saying that working for high marks so trained him that he succeeded; that marks, without further explanation, represent valuable learnings. The student with high marks, as a rule and excluding the "grade hound" type, has learned and is on the way to success not because he worked for high marks, but because the type of work he did incidentally entitled him to high marks. His type of work results in desirable outcomes which naturally receive high marks; he has been developing habits of sustained attack, habits of study, ability to gather data, ability to discriminate, and so forth. Unfortunately, it must be stated that it is also quite possible in many schools and under many methods of teaching to receive high marks which do not represent real learnings of the type noted.

Morrison²⁷ presents a particularly clever exhibit showing the contradictions and confusions which result from testing memorization of facts and definitions and then attempting to interpret the results as evidence of functional learning. The theoretical records of two students in grammar are presented. They could be actual records from any number of schools.

TOPIC	PUPIL A PER CENT	PUPIL B PER CENT
1. Parts of speech	81 Passed	72 Passed
2. Elements of the simple sentence	90 "	78 "
3. Adjective and adverbial modifiers	50 Failed	71 "
4. Phrase modifiers	74 Passed	73 "
5. Gender	85 "	70 "
6. Number	82 "	79 "
7. Person	94 "	76 "
8. Case	89 "	75 "
9. Tense	75 "	70 "
10. Relative clause	63 Failed	71 "
11. Compound sentence	58 "	70 "
12. Participle	77 Passed	71 "
13. Infinitive	42 Failed	72 "
14. Transitive and intransitive verbs	56 "	70 "
Average	73 Passed	73 Passed

For ease of discussion we may assume that each pupil during the course has one hundred chances to respond to questions involving the items listed. Both receive identical average grades, which being "passing grades" are accepted as evidence of satisfactory proficiency in the given items of formal grammar—evidence that learning has taken place. But specifically, what learning?

One pupil passed in all fourteen items, the other failed five of them, but both received the same average grade. Is the learning similar in both cases? One pupil has no grade higher than 79, none lower than 70; the other pupil, two grades 90 or over, five lower than 70, and, in fact, one of

²⁷ Henry C. Morrison, *op. cit.*, p. 44.

42. Both get the same passing grade. Can excess learning in understanding simple sentences compensate for failure to understand the relative clause? Obviously the appropriate learning outcomes are not involved at all. The teacher and the pupils are not concerned with them. The mark is the significant thing; and being accepted as evidence of learning, it actually obscures not only the appropriate learnings but also the fact that inappropriate, non-functional learning has taken place. The teacher, in all probability, failed to define clearly just what learning outcomes—understandings and abilities—were to be derived from reading, discussing, using, writing about the fourteen items. Without clear recognition of what is to be learned, certainly learning cannot be tested. The tests given in this instance would assuredly have dealt with facts, details, drilled responses, faithful preparation of daily recitations, and not with the appropriate, functioning learning outcomes.

A graduate student in the writer's class, asked to give concrete illustrations of real life confusion between learning and the symbols of learning, turned in the following remarkable character sketch of a man he knows who is an honor graduate of a great university:

He can quote all the Shakespeare that he was ever told to memorize, yet he will not go to any play, let alone one by Shakespeare himself. He regularly gets a score of 90 on *Time's* 'Current Events Test,' yet he refuses to read any critical non-fiction books and he has not the slightest conviction concerning either the value or the worthlessness of the New Deal. Nor does he see why anyone in the United States should be concerned that the Loyalists lost in Spain. He wears a Phi Beta Kappa pin, yet he has never registered to vote. He knows where John Hancock's house stood on Beacon Hill, yet he walks through Boston Common on May Day oblivious to the speakers and to the drama of the events around him.

At college we all borrowed his notes because they were almost verbatim reports of the lectures, but we know he has had three jobs in four years. He can become as enthusiastic about the Bible as living literature as did Professor ——— and he can give a clear intellectual account of Spinoza's ethics, yet he can and does regularly deal from the bottom of the deck when playing poker. He has all the symbols of learning—even a gold one—but the practice is a curious thing.

Prizes and other awards open to similar criticism. What has been said of marks applies also to any other type of extrinsic reward for learning. When a prize or medal or honor of any kind comes to have large value for itself, when as a symbol it becomes more important than the achievement for which it stands, it is distinctly detrimental to education.

These pages should not mislead students into sweeping rejection of marks. Shocking as it may seem to the uncritical, the common systems of marking are in serious need of overhauling. The whole system of awarding cups, medals, athletic letters, pins, even the present use of honor societies is inimical to learning and is in serious need of scrutiny. Fortunately, much real progress has been made in recent years. In many school systems, traditional marking has been radically improved, wholly new methods which utilize descriptive accounts of actual learning prod-

ucts have been invented. The behavior record is another new development. Improved marking systems and modern substitutions therefor will be presented in detail in Chapter 19. The relation of marks and rewards to motivation will be treated briefly in the section on purposeful learning in Chapter 4.

Credits, courses passed, as symbols of learning. The tale related in Question 1 at the beginning of this section illustrates this point. The student had "passed courses" in English—hence had "learned"—but he could not write intelligent discourse in other situations. The discussion of learning so far given in this book, introductory as it is, indicates that it is quite possible to pass courses and not to have learned anything usable in real life. The confusion here discussed has been satirized in witty manner by Learned of the Carnegie Foundation for the Advancement of Teaching.²⁸

What is a "credit"? A school credit is a semester's installment-certificate toward promotion. It rests on the two-fold factor of time-spent-in-class and a passing mark awarded by a school or teacher. Its most objectionable, not to say irrational, characteristic, however, is not that it is awarded by a teacher or that it permits promotion, but resides in the fact that, once granted at the end of a half-year's study in any subject, it becomes inviolable and reacts to disintegrate the pupil's knowledge of the content of that subject much as strong acid corrupts living tissue.

By means of an outward formula we here suddenly convert a value which, if sincerely handled, might prove a useful increment in a child's process of *becoming*, into an executive product henceforth detached from its maker; the pupil views it altogether as something done and "done with." Since it is henceforth inviolable, it can freely be left behind and forgotten.

No vault on earth is so safe for all time as our school records; no security so immune to varying markets and worldwide depressions as these coupons. Talk of "frozen credits"! Not in all the world in these hard times are there such masses of paper on which it is impossible to realize as in the offices of our school and college registrars. Fluid enough, mind you, for purposes of institutional exchange, and that always at par, but flat as Wall Street in 1931, from the point of view of demonstrable education.

The indictment against school credits holds that the use of such a currency serves to create and perpetuate what tends to become mere empty illusion. It completely deceives the pupil as to the meaning of education; it misleads the administrator as to the value of his carefully planned organization; and it misrepresents the achievement of the school to the public.

Learned then develops the deception practiced on the learner in the same terms as the misconceptions of learning are developed in this chapter. The entire discussion is well worth reading since it is replete with humorous, but at the same time devastating, illustrations of confusing *credits* with *education*.

Confusion between symbol and essence not uncommon in life. The

²⁸ William S. Learned, "*Credits*" versus *Education* (New York, The Carnegie Foundation for the Advancement of Teaching, 1933), p. 3. A pamphlet.

blunder of confusing between true and false objectives and the substitution of the symbol for the reality is by no means confined to the so-called "impractical" schoolmaster. The so-called "hard-headed" business man and other laymen generally make it constantly and in important affairs.

In school functional learning, the real objective, is subordinated to the symbol thereof. In the church there are uncounted thousands who say the creeds, attend services, perform the various rituals, participate in sacraments, but whose lives are clearly governed by principles diametrically opposed to those promulgated in church. The repetition of creeds, participation in rituals, membership on church committees are accepted as evidences (passing marks!) of piety and right living when as a matter of fact they are cloaks for the opposite. The symbols are clearly substituted for the essence.

The symbols of patriotism are unfortunately very easily substituted for the meaning. Some of the "patriotic" organizations are the worst offenders. A certain type of citizen, sometimes even in uniform, springs upright on hearing the national anthem, stands rigidly at attention as the flag goes by, and mouthily condemns any one who suggests that patriotism is not necessarily present at all in this posturing. These same individuals break their poses quickly in order to get back to chiseling on rationing programs, to criticizing without facts, and to spreading dangerous rumors. The meaning of patriotism is to be found in consistently loyal behavior beginning with the everyday affairs of the workaday world.

Certain business leaders hold up "rugged individualism" and "the American way" as symbols of the essentially good life. In many cases these symbols are euphemisms to cover thoroughly vicious practices. The true meanings of and relationships between individual enterprise and collective effort are deliberately beclouded. One type of labor leader offers the "down-trodden working man" as a symbol for a total class and thereby prevents true meanings from emerging. Fortunately, enlightened industrial and labor leaders are seeing ever more clearly that safety and happiness lie in getting at essential facts, in avoiding discussion limited to meaningless slogans and symbols.

Certain business men and politicians use the symbols "socialism" or "communism" to obscure the true meaning of anything which threatens their vested interests. Often the individuals thus using symbols to befuddle meaning actively perpetuate the conditions which bring on the honest discontent and revolt. Dealing with facts and meanings instead of symbols would aid in preventing this.

And so it goes: pompous nonsense from many pulpits; specious pleading and legal sophistry from respectable (*sic*) lawyers; the lovely words of public officials denying responsibility for graft, corruption, and disaster clearly owing to their own incompetence and dishonesty; the twitterings of socially prominent but intellectually incompetent persons.

Symbols, and verbal symbols at that, substituted for meanings and preventing meanings from emerging in social thinking.²⁰

The implications for teaching. What has all this to do with learning and teaching? Again as in the preceding section of this chapter, we have an illustration of the vital relationship between education and society. Erroneous conceptions of education result in training individuals to accept separation of symbol from essence. In mature form this is hypocrisy and dishonesty of a grave type. Competent education strives steadily toward valid meanings and the control of conduct by such meanings.

When the mark, the "passing grade," "the course credit," "passing the college boards," "passing the Regents," are the real aims for teachers and pupils, the tendency then is for the teacher to fail to make clear the desirable outcomes of learning. She may in fact be, and often is, ignorant of them herself; she uses compulsion and fear as motives instead of pupil purpose and pupil recognition of need. Even when the teacher is aware of the discouraging situation, she may find it very difficult to set teaching-learning situations in which functional learning will emerge. She is likely to resort to external rewards.

The situation, being administrative and system-wide, is usually beyond the control of the teacher. This does not mean that nothing can be done. Quite apart from constantly participating in discussions of the difficulty and serving on committees engaged in reconstructing marking systems or report cards, the teacher should endeavor to teach for valuable learning outcomes in spite of the serious handicaps. The remainder of this volume endeavors to supply definite suggestions for doing this.

DISCUSSION QUESTIONS

This particular misconception (the confusion between symbol and essence) is difficult to discuss at this stage of the course. Students may be encouraged, however, to search their own school experience for illustrations, and to look for illustrations outside of school.

1. It has been said that, "The teacher should endeavor to distinguish between the attainment of knowledge (or other legitimate learning outcome) and the acquisition of the symbols of knowledge."
 - a. Cite any illustrations you can recall of failure or success in this as noted in your own school experience on any level.
 - b. Cite illustrations from outside school affairs of the real point involved, namely, confusion between symbol and essence. First seek illustrations involving learning.
 - c. Cite specific evidences from conversations showing that a teacher is clearly, even if honestly, ignorant of the objectives of her own teaching.
2. Report upon any organized attempt recalled or currently observed on the

²⁰ For genuinely entertaining as well as enlightening reading on this general problem see:

H. R. Husc, *The Illiteracy of the Literate* (New York, D. Appleton-Century Co., 1933)
 Joseph Jastrow, *The Betrayal of Intelligence* (New York, Greenberg Publishers, Inc., 1938).

part of a school system to meet the problem outlined in this section of the chapter. (Organized study of the reform of marking systems will be taken up in a later chapter)

3. What is your critical reaction to the table of comparative marks quoted in this chapter from Morrison?

4. What is the meaning of, and guidance for use in the italicized sentence toward the bottom of page 47 in Morrison?

5. What are some of the desirable learning objectives constantly referred to in this chapter which are lost through symbol substitution? Generalized answers are acceptable at this stage of the course.

6. What is the most important point made in the discussion of Latin and French, pages 53-56 in Morrison?

READINGS

MORRISON, Henry C., *The Practice of Teaching in the Secondary School* (Chicago, University of Chicago Press, revised 1931), Chaps. 3 and 4. Has been assigned previously in this chapter. Reread only if necessary.

FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (New York, D. Appleton-Century Company, Inc., 1938), selected paragraphs from Chapters 4 and 22. Excellent bibliographies in each chapter.

LEARNED, William S., "*Credits*" versus *Education* (New York, The Carnegie Foundation for the Advancement of Teaching, 1933). A pamphlet.

WHEELER, Raymond H., and PERKINS, Francis T., *Principles of Mental Development* (New York, Thomas Y. Crowell Co., 1932), pp. 306-309, 417-419.

SUMMARY EXERCISES AND REPORTS ON WHOLE CHAPTER

1. The chapter has listed four major misconceptions or erroneous ideas concerning learning activities and products. There are some twelve to twenty erroneous ideas of a minor nature which are widely believed. Some of these can be inferred from the discussion so far, others can be derived from one's own past experience, still others will not appear without further study.

a. Make a list of minor erroneous concepts regarding the process and products of learning.

b. Illustrate these either from experience or from observation.

2. Confusion between symbol and essence or desired result is common outside school.

a. Describe specific instances of this confusion observed or experienced in any area of human experience; business, politics, religion, social life, etc.

b. Show definitely how the error in real life begets undesirable results ultimately just as it does in school.

3

The Relation of Experiencing to Learning

SECTION I

EXPERIENCE AS THE SOURCE OF KNOWLEDGE AND OF SKILL

Let us recall the illustration in the first chapter which described the learning situation in which the high-school boy learned to bat.

How did he learn to bat? He learned to bat by going through the actions of batting, by experiencing the reactions involved.

How did he learn to carry directions and explanations over into action? He learned to do these things by actually doing them; by thinking, visualizing, and then attempting to produce the act. These attempts helped to perfect his ability to translate directions into action, that is, affected the mental processes preceding and accompanying the act.

How did this boy learn to accept criticism without getting his feelings hurt and without getting angry? He learned to control feelings and temper by actually undergoing criticism, by actually experiencing the necessity and action of controlling himself.

How did he achieve certain understandings, learn certain principles, acquire certain attitudes about the necessity of control? He learned these things by undergoing incidents and situations which constantly illustrated the understandings and attitudes, and, when analyzed, convinced the boy of the worth and usefulness of the knowledges, attitudes, and abilities he was acquiring.

How did he learn to persist in the face of difficulties, to overcome obstacles, to disregard ridicule? He learned the worth of persistence through persisting toward a goal which he valued.

And so it was with the numerous other learning outcomes derived from the total experience.

The boy learned what he learned through reacting, through doing, through undergoing the things he learned. *This process of learning by doing, reacting, undergoing is called experiencing.* Experiencing is the actual living through of actual situations and of reacting variously to the several aspects of that situation. Experiencing includes whatever one

does or undergoes which results in changed meanings, attitudes, skills, changed behavior of any type. Here we have a preliminary, and so far only a superficial, definition of learning, both activity and product. The activity is experiencing. The products are knowledges of two principal types, understandings and facts, attitudes and ideals, special abilities and skills. These products of learning are all achieved by the learner through his own activity. Education for long has been carried on as if the pupil passively absorbed knowledge and attitudes which were put before him to be learned, as if he had education poured into him, as if he *received* his education. We cannot *give* any one an education; he must *get* it.

Evidence and inference supporting experience as the method of learning. So far all this sounds sensible and plausible. The careful student will have noted, however, that the definition rests upon illustration and not upon evidence or upon reasoned conclusions. How do we really know that experience is actually the process of learning? If experience is one of several valid learning procedures, how do we know that it is the most desirable? What evidence exists? What inferences are justifiable?

The search for answers to these questions leads far afield into philosophy, epistemology, biology, social theory, psychology, and the new methods of evaluating the effects of learning. Let not the sound of these words dismay the beginning student, the explanations are relatively simple. But if he finds the explanations somewhat difficult, the student must remember that teaching and learning are themselves relatively difficult processes. Teaching is not, as is thought by the uninformed, the mere business of training individuals in the simple skills of reading, writing, and arithmetic, plus some elementary facts about citizenship. Learning is far more than the mastery of the so-called "fundamentals." Teachers cannot possibly understand, let alone participate successfully in, teaching and learning unless they have some insight into the way knowledge originates, into the way individuals learn, into the nature of the type of individual and of society which should result from learning or educational growth, into the relation between personality and organized society, and into the methods of determining whether desirable learning has taken place.

Principles of learning offered as a basis for teaching must

- a. rest upon a valid theory of knowledge,
- b. rest upon facts concerning the nature of the learning activity,
- c. rest upon facts concerning the nature and development of individuals,
- d. square with the aims of our democratic society, and
- e. square with valid evidence of successful learning.

This means that there is, or should be, an organic connection between life and education, between experience and learning. Let us examine that connection and the five points listed above. The following discussion

endeavors to handle the points as functionally related thus avoiding mechanical separation. Some separation is necessary in order to avoid complex discourse. Much of the material in the foregoing chapters will have prepared the student for this more difficult analysis. Succeeding chapters will carry the presentation further.

Where does knowledge come from in the first place? How do we know what we know? How did we come by the things we now know? How did there come into being originally all the facts, understandings, meanings, beliefs, attitudes, and skills which we use every day? As we say, "Who made them up in the first place?"

The average citizen and the average teacher have a ready and simple answer: knowledge comes out of books or from lectures; one gets knowledge from reading or listening. This is partly true, but the error in it is a grave one which has handicapped, perverted, and inhibited teaching and learning for generations.

When asked where skill comes from, the average citizen has a different answer. Skill comes from practice. If the naïve individual could see the relation of this answer to the one he makes when asked where knowledge comes from, he would himself find the grave error referred to above. We shall see how this is so a few pages further on.

But, we may ask, where did the knowledge now compiled in books come from in the first place? This question leads us into the field of epistemology. Many students will shy away from this "big word." So-called practical teachers will dismiss it contemptuously as "more theory." There is, however, a very simple explanation for the word, and the explanation is of basic importance for teachers. Literally thousands of teachers are today talking pure nonsense about their own teaching procedures because they know nothing of the simple facts in the field of epistemology, which is nothing more than the study of the origin of knowledge. Let us examine the epistemological basis for the individual learning and for the accumulated learnings of the group.

Relation between the individual's learning achievements and his experience. The illustration used at the opening of this volume and referred to again at the opening of this chapter demonstrated that experience was the method of learning and determined the outcomes. It is, however, only a single anecdote. Is there any organized, systematic evidence carefully derived from many cases? Fortunately, there is. A very large number of inventory studies have been made of children's information, interests, and attitudes. These show close and inescapable relation between experience and the meanings and attitudes possessed.

The early information-inventory studies (made in this and other countries) are listed in Chapter 3 of Burton's investigation of the political, economic, and social information possessed by children from grades five to nine. This study covered a period of ten years and included

approximately 9000 children.¹ Ample evidence was discovered showing not only the relation between experience and learning but also the effect upon learning of half-a-dozen factors which limit experience.

The most famous of these inventories is the first one made in this country by G. Stanley Hall in 1883.² Here were revealed for the first time to teachers in the United States the astounding gaps in information and the astonishing misinformation possessed by many little children. The connection with experience was clear.

The effect of environmental and experiential influences on the attitudes and behavior of individuals is strikingly revealed in the now famous study, *Delinquency Areas*, by Shaw.³ The juvenile delinquency rate remains constant in given geographic residence areas even though there has been over the years a marked shift in the national origins of the population in those districts. As the different groups achieve better status and move out to suburban areas, their delinquency rates drop sharply in keeping with the new environment and higher type of experience.

The citation of the three studies above is almost trivial in the light of the tremendous body of data available. Literally hundreds of studies have been made of the sources of general and special information possessed by children and adults, and of the origins of attitudes and interests, and so forth. Scores of investigations have been made of so-called "problem" children, of juvenile delinquency, of the effect of various factors in environment and their relation to persons. Genetic studies of growth and development have been made in many child-study clinics. Psychiatrists, anthropologists, biologists, historians of civilization, and many others have contributed data. The relation between experience and learning is validated in many areas. The man of common sense has never had any doubts—the superficial connection is so clear.

Later we shall see that it is correct to say that we learn *with* experience, rather than *by* or *through* experience. For the moment the common usage will suffice.

A simplified and generalized illustration. The following exposition is based upon actual incidents in several studies of children's experience and learning. Little children reared in large cities often state, when questioned, that milk comes from bottles. Pressed further as to the real source of milk they will say that the bottles come from the store. Their

¹ William H. Burton, "Children's Civic Information, 1924-1935," Southern California Education Monographs, No. 7 (Los Angeles, University of Southern California Press, 1936).

² G. Stanley Hall, "The Contents of Children's Minds on Entering School," *Princeton Review*, May, 1883, pp. 249-272. This study is reviewed and cited in many early textbooks in education. Its content is as important today as when derived. An account of the study is also available in Hall's *Aspects of Child Life and Education*, edited by Theodate L. Smith (Boston, Ginn and Co., 1907).

³ Clifford R. Shaw, and others, *Delinquency Areas* (Chicago, University of Chicago Press, 1929).

knowledge and belief that milk comes from bottles is *wholly correct as far as their experience goes*! The naive parent or teacher then says that we easily remedy that by *telling* the child that milk comes from cows or by having him read a book with pictures. The child may *agree* and may *repeat* the statement, but he does not then *know* that milk comes from cows. In fact this statement though glibly repeated may actually have no meaning at all for the child. It is a verbalism. Scientific analyses of the ideas of children show that many from both slum and the best residential districts in large cities do not know what a cow looks like. They have no idea how milk is secured from a cow. Many children imagine a cow to be about the size of a dog or a tiger; one child said it was the size of a mouse. These children acquired their curious ideas through seeing pictures in books; the pictures not being carefully scaled throughout the volume, cows on one page were the same size as dogs or mice on another. Again the children's ideas are *wholly correct as far as their experience has carried them*. The child will *know* what a cow looks like and how milk is secured only by experiencing; in this case by seeing a cow being milked. Several psychological experiments have involved just that—taking the child to the farm. After *experiencing* the situation many children refuse for some time to drink milk at all! The experience changed not only their *knowledge* but their *attitude*! Being *told* that milk comes from cows did not affect behavior because the children did not *know* what that meant. They merely *agreed* or *accepted* the *verbal statement*. The previous chapter has already dealt with the futility of verbalism. Knowledge, attitudes, or appreciations, special abilities, and skills all come from experience.

The principle that learning is through experiencing is recognized not only by psychologists and educationists but by insightful and intuitive individuals everywhere. Poets and novelists often express the point admirably. Thomas Wolfe in his *The Web and the Rock* (Harper and Brothers, 1939, page 380) puts it thus:

Again, the world is full of people who think they know what they really do not know—other people have had their convictions and beliefs and feelings for them. With Mrs. Jack, it was at once obvious that she knew what she knew. When she spoke of the little tailors sitting crosslegged on their tables, and of the delicate and beautiful movements of their hands, or when she described the beauty and dignity of the great bolts of cloth, or when she spoke with love and reverence of the materials and instruments she worked with, one saw at once that she spoke in this manner because she had used and known all these things, she had worked and wrought with them, and her knowledge was part of her life, her flesh, her love, her marrow, her tissue, and was melted and mixed indissolubly with the conduits of her blood. This is what knowledge really is. It is finding out something for oneself with pain, with joy, with exultancy, with labor, and with all the little ticking, breathing movements of our lives, until it is ours as that only is ours which is rooted in the structure of our lives. Knowledge is a potent and subtle distillation, a rare liquor, and it belongs to

the person who has the power to see, think, feel, taste, smell, and observe for himself, and who has a hunger for it

Parents and teachers who think that knowledge comes from books and lectures generally, are at the stage of the children who think that milk comes from bottles. They are right as far as their experience (previous teaching and learning) has carried them. We may repeat a question asked earlier: Where does the material compiled in books come from in the first place? Before answering that question, we recall the hint given earlier which would aid the average citizen to understand the relation of experience to knowledge—except that he overlooks the clue! Ask the ordinary individual where knowledge or facts may be gained, and he is very likely to reply that these items are to be found in books, dictionaries, cyclopedias, libraries, etc. Many will combine experience as a source with this answer but many do not. Now ask these same persons where ability to skate, to dance, to write shorthand, to operate for appendicitis come from and all will reply, "Why, from doing it, of course." Some will add that the study of books and pictures is necessary but that the main thing is to practice the thing to be learned. Now let us proceed with this distinction in mind.

Experience as source more easily seen in non-academic learnings. The average citizen overlooks the clue concealed in his two answers. Both types of learning come from experience, but the repeated and refined experience of mankind has been compiled in written form. It can be so used under certain circumstances, but the original source is concealed. This has led to serious malpractice in teaching within the content subjects.

The shop teacher is under no delusions about experience as the method of learning. He knows that both *understandings* about the use of and *skill* in the use of tools will come only through experience with those tools. The music teacher also knows that her pupils will learn only through doing the things they are to acquire. Teachers who aid pupils in learning to swim, to type, to draw, to dress tastefully, to cook, can see without argument that pupils learn through experiencing. These teachers look also for the appearance of the skill itself as proof that learning has taken place. They would not dream of accepting a verbal description or definition of the skill in place of the skill itself. Moreover, no shop teacher, art teacher, or track coach expects the learning outcome to be achieved rapidly and equally well by pupils of different ages and abilities. These teachers take as a matter of course continued experience, practice, and adaptation to individual differences.

The teacher whose task it is to aid pupils to achieve understandings or attitudes does not so easily see that these learning outcomes rest equally upon experience. She is handicapped by what is actually one of the most useful of human inventions, namely, language! Understandings and attitudes can be defined and described in words. The words

can be repeated by any one who will listen and imitate or read and remember. Furthermore, the functioning of a real understanding or attitude is not so easily observable in conduct. Even worse, the teacher has been trained and habituated all her life to accept words in place of actual meaning. The pupil has been similarly habituated to present this spurious coinage. Students are often irritated and insulted when they accidentally fall into the hands of a competent teacher who demands that understandings be demonstrated in action and not be merely described in words.⁴

The ease with which words can be memorized and repeated leads teachers into another serious error, namely, failure to realize the amount of time actually necessary for the acquisition of a genuine understanding or attitude. The words descriptive of the understanding are all clear to the teacher. Meanings and illustrations are in her mind. She forgets almost entirely the long slow process through which adults have achieved their beliefs and attitudes. Teachers seem to believe that because students can list arguments in favor of coöperation, can describe the processes of coöperation, they are thereby able to coöperate in many different and intricate situations. A teacher tells a boy to act as chairman of a committee and describes the procedure to him. The boy is often expected to conduct the operations of a competent chairman without any observation, participation, or independent practice. The writer observed a high-school teacher dictating a long description with definitions which the students wrote down. Upon completion the teacher was bombarded with questions directed at getting the meaning of the material just copied under dictation. The teacher replied in exasperation, "You know that as well as I do; I just dictated it to you!" He dictated the *words*. The *meanings* can come only through experiences. If learning actually took place as these teachers evidently believe it

⁴ Roy O. Billett, *Fundamentals of Secondary School Teaching* (Boston, Houghton Mifflin Co., 1940) Pages 141-143 contain interesting material similar to the paragraphs here.

Instructors and students who may wish to make a brief excursion at this point into the realm of semantics will find interesting, easily-understood, introductory material in:

Committee on the Function of English in General Education, *Language in General Education*, Report of the Commission on Secondary School Curriculum of the P.E.A. (New York, D. Appleton-Century Co., 1940).

Stuart Chase, *The Tyranny of Words* (New York, Harcourt, Brace and Co., 1938). Popular and widely read

S. I. Hayakawa, *Language in Action* (New York, Harcourt, Brace and Co., 1939). Popular, easy reading. Not so fundamental as Korzybski or Richards or Walpole.

H. R. Huse, *The Illiteracy of the Literate* (New York, D. Appleton-Century Co., 1938). Extremely witty, penetrating discourse.

I. A. Richards, *The Philosophy of Rhetoric* (Oxford, Eng., Oxford University Press, 1936). Hard reading but thoroughly sound.

Alfred Korzybski, *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics* (Lancaster, Pa., Science Press Printing Co., 1933. Second Edition, 1941). One of the best known. Richards and Walpole are better references.

Hugh Walpole, *Semantics* (New York, W. W. Norton and Co., 1941). An excellent reference.

does we could produce world champions in any area overnight. All we need to do is to tell a likely boy to go out and jump ten feet high or run a hundred yards in nine seconds. He can do that or lift himself by his boot straps as well as he can achieve difficult and intricate meanings by listening to words. (Meanings are conveyed through words under certain recognizable conditions, which will be discussed toward the end of this chapter.)

Concepts, principles, attitudes, or complex special abilities are the products of long, slow growth processes involving many and varied experiences. They cannot develop overnight out of "assignments." The academic teacher will be aided by keeping in mind the easily observable situation in the non-academic learnings. Students do not develop motor skills immediately. So also with mental skills, social skills, and concepts. Time, varied experiences, contacts, and illustrations are necessary.

A third error—failure to discover great individual differences in learning—results, since all pupils can memorize and parrot words about equally well. The difference in understanding among pupils, *all of whom can say the same words*, is often literally enormous. It may range from no understanding at all to adequate, functioning meaning.

Children were asked to tell what the word "primitive" meant to them, in the following sentence:

Since there were no matches in 1763, the most primitive way of starting a fire had to be used. A piece of very hard stone called flint was struck against a bit of steel. This produced a spark which was caught in tinder or in soft, dry cloth.

Meanings used by the children to interpret "primitive" included: "the only way," "the easiest way," "the most important way," "the best way they could think of," "the most used method," "the most dangerous way," "a new way." Incidentally, the writer annually finds graduate students who have no meaning at all for "tinder," "trencher," and "primitive."

A fifth-grade history book contains the sentence:

Daniel Webster said of Hamilton, "He smote the rock of national resources, and abundant streams of revenue burst forth. He touched the dead corpse of public credit and it sprang upon its feet."

Children got the following meanings:

Daniel Webster said that Hamilton a plenty of government has burst forward. He put his hand on dead people and free to everybody and it grew to its feet. When he touched the dead they would spring to their feet.

Daniel Webster said of Hamilton, "He stopped mother nature and fake rivers came instead. He stopped public credit and it was returned to him."

The figurative language is a complicating factor but the real point is that the understanding presented is complicated. Pupils cannot possibly achieve it, even in simple language, without having had much

reading and learning about it. The understanding grows out of repeated contacts and does not "spring to its feet" when the teacher lays her assigning hand upon it!

Much of the popular complaint about the teaching of American history would be silenced if educators were allowed to write history in terms of children's understandings and to teach it realistically. Incidentally, such exhibits as this and others available should cause many typical history teachers to lose much sleep pondering the intelligibility of the texts used.⁵

There not only must be many experiences illustrating the understandings and attitudes to be achieved but these experiences must be in great variety. Different minds are illuminated by different experiences. The modern school is committed to the belief that a rich and varied series of experiences is necessary to learning.

Because of the gap between life and the school, because of the wider use of books, invaluable instruments though they are, the vital connection between experience and learning is often obscured for many academic teachers. The correction of this error is one of the pressing problems of the current period. The modern elementary school is well on its way to basing learning on experience. The high school is about to come under terrific pressure to do likewise. If the high school fails to make this adjustment with some speed, it may be reduced to a small formal institution outside the vigorous educational life of the country. Words and books are among the most important aids to learning as will be shown later but they may also effectually prevent genuine learning.

The accumulated culture materials of the race are derived from experience. The average citizen is, in astonishing degree, prone to attribute finality to the printed word. He is controlled by it far more than he knows or admits. The success of propaganda and of advertising, plus the necessity for education for protection against propaganda and from the misleading type of advertising testify to the power of print. The responsibility rests in part upon our inadequate teaching of reading on the upper levels, our verbal methods of education, and the memorization of printed subject matter. A natural result of all this is to overlook what lies behind the material in books and other repositories. Primacy is attributed to the accumulated culture materials. Their origin in useful activity is overlooked or never known. But the account so far

⁵ Joseph C. Dewey, *A Case Study of Reading Comprehension Difficulties in American History*. Doctoral Dissertation, University of Iowa, 1931. Abstracted in *University of Iowa Studies*, No. 10, 1935.

Adelaide M. Ayer, *Some Difficulties in Elementary School History*, Teachers College Contributions to Education, No. 212 (New York, Teachers College, Bureau of Publications, 1926)

Scores of similar studies are easily available.

For further humorous and enlightening illustrations see pages 401-406 of the *Forty-First Yearbook of the National Society for the Study of Education*, Part II.

indicates that the extensive cultural capital of the social group must be the result of long years of analyzed experience.

To be fair it must be noted at this point that there are other interpretations of the origin of knowledge. There are some partial differences of opinion. Many excellent scholars have devoted their attention to the problem. During some periods it was believed that knowledge existed before and independently of experience. This was called *a priori* knowledge.⁶ Knowledge was thought to exist for its own sake and not

⁶ The emphasis to this point has been upon the so-called pragmatic, more properly the empirical, origin of knowledge. The first knowledge derived by any one clearly comes empirically from direct experience. The vast bulk of knowledge dealing with everyday affairs, possessed by individuals and by society is equally empirical in origin. The conduct of teaching, therefore, in the common schools and for general education commonly will be based upon this conception of knowledge.

Mature minds, however, produce mental constructs which are not derived directly from experience and which cannot be observed directly in the practical world. Capable individuals go beyond experience to produce abstract generalizations, values, ideals, even hopes and aspirations. They go beyond experience by means of rational and describable processes of analysis, through contemplation of experience, through speculation. The roots of these processes are in experience, however, and many pragmatists or empiricists agree to this. "Going beyond experience" does not mean to do so in a capricious, irrational, or mysterious way. One may not legitimately "transcend" experience through an obscurantist disregard for facts and logic, the known principles and controls of thinking. For our purposes here, suffice it to say that the emphasis upon empirically derived knowledge needs, eventually, in the upper levels of education to be supplemented through discussions of knowledge derived through higher mental processes. This will appear later in this chapter and elsewhere in the volume.

The discussion of this vital problem in these pages is brief to the point of superficiality, first, in order that certain points may stand out starkly, and second, because it is assumed that students will have met the problem and the differences of opinion earlier or currently in courses in philosophy of education. Instructors who wish to present a different interpretation, or who wish to bring students into contact with various accounts may do so through excellent, easily available, modern summaries. Time should not be taken from this already heavy course, however, unless students have completely missed the work in philosophy. The two most recent summaries are:

National Society for the Study of Education, *Philosophies of Education*, Part I, *Forty-First Yearbook* (Bloomington, Ill., Public School Publishing Co., 1942).

American Educational Research Association, "Philosophy of Education," *Review of Education Research*, June, 1942, chap. 4, pp. 289-298.

Other excellent material:

Frederick S. Breed, *Education and the New Realism* (New York, The Macmillan Co., 1939). Ably presents a view opposite to the one in this volume.

Thomas H. Briggs, *Pragmatism and Pedagogy* (New York, The Macmillan Co., 1940).

J. S. Brubacher, *Modern Philosophies of Education* (New York, McGraw-Hill Book Co., 1939).

Isaac Doughton, *Modern Public Education, Its Philosophy and Background* (New York, D. Appleton-Century Co., 1935). Preface and Chapter 1. Use index for other scattered discussions.

L. Thomas Hopkins, *Interaction* (Boston, D. C. Heath and Co., 1941), pp. 44-49; 80-92.

Charles H. Judd, *Education as the Cultivation of the Higher Mental Processes* (New York, The Macmillan Co., 1936).

R. C. Lodge, *Philosophy of Education* (New York, Harver & Bros., 1937), Chaps. 1-4, 7-9.

necessarily to serve any purposes of the learner, or even purposes of individuals engaged in everyday pursuits outside of school. Knowledge was thought to be revealed. Once found, it was eternal and unchanging.

For instance, Plato taught that mathematical principles were eternal truths. Geometry, which actually began as all knowledge begins in the real problems of the world, had been divorced from its social origin and from its social use. Plato exalted it into a mysterious ritual regarded as a playful field for the ingenuity of those who had leisure for it. Generations of students in Europe and in the United States have been taught geometry by some teachers who were practically completely ignorant of the origin, nature, and use of geometry. The teachers did not know the social implications of the subject and naturally the pupils never discovered them. They neither knew nor discovered that geometry once wrecked a whole pagan religion by vitally changing men's ideas of space; made possible far-flung navigational exploits; enabled man to measure things hitherto beyond his imagination. In this divorcement of geometry from its social origin and extremely important use in early civilization, we have but one more illustration of the degeneration of learning from the derivation of functional meanings into the memorization of subject matter.

Kant used the Platonic conceptions of eternal truth to fight the materialists who were challenging the entrenched beliefs of that day. Shortly after Kant's day the biologists, the physicists, and the mathematicians themselves began making discoveries which brought geometry down out of the clouds into relation with reality again. They showed that geometric truths when applied to the world we live in are only approximate truths after all; relativity is an important basic concept when applied to knowledge.

There has been increasing agreement, however, that knowledge arises out of experience and is useful and meaningful in furthering the purposes of the learner. Human knowledge, the accumulated culture of the race or of any given society, arose out of man's efforts to solve his problems. As early man tried to secure enough to eat, clothing with which to cover himself, and shelter from the elements, he discovered, evolved, and invented many facts, meanings, attitudes, and abilities. When later he tried to discover the nature of the world in which he lived, framed mechanisms for group living, attacked the problems of intergroup relations, evolved methods of manufacturing goods and exchanging them, and so forth, he discovered and constantly refined more and more knowledges. The meanings and abilities first achieved he then applied

Robert Ulich, *Fundamentals of Democratic Education* (New York, American Book Co., 1940), Chap. 3. Use index for other scattered references.

Not only will differences from the pragmatic view be found but differences will be found also among various authors who uphold any one given interpretation of the origin of knowledge.

to further analysis of the world and of life. As his experience extended, he accumulated more and more knowledge.

Another important idea emerged in due course, namely, that knowledge changes, improves, becomes more accurate, more useful as experience is extended and refined. Learners of any and all ages acquire and improve their knowledge, attitudes, abilities, and skills through experience, through the constant refinement and reorganization of experience. Just as with the milk in the bottles, so also with knowledge in books and in other repositories, we must go back to the original source. In addition to being sound epistemological reasoning, this connection between experience and learning is supported, as already noted by scientific facts derived from experimental investigations.

"Eternal" truths and "absolute" values. The foregoing paragraphs should not lead the student to believe that there is nothing solid or reliable in the way of principles, religious ideals, truths, moral values, or aesthetic values. It is as necessary to be on guard against the extremes of relativity as against the extremes of absolutism and authoritarianism. Many persons first meeting the empirical theory of knowledge think that it rules out ideals, standards of truth, love, beauty—rules out so-called higher things which transcend earthbound experience. Not at all. Empirical thinking goes beyond experience when it speculates upon what is known, analyzes it, and imaginatively attempts to interpret and organize it. Liberal empiricism has ample place for hopes, dreams, aspirations toward better men and better worlds; but these hopes and aspirations are rooted in the facts of experience and not on fantasy which mysteriously transcends, that is, defies facts. It is significant that creative artists in all lines always create within the institutions and mediums of their experience. Chinese children produce typical oriental art; American children produce occidental art. But Chinese children born and reared in California or New England produce typical occidental pictures, poetry, and written composition. Thinkers who produce values, ideals, truths which are said to transcend experience in some occult manner and to exist independently outside experience are to be suspected of refusing to trouble with the realities of life and of disregarding or defying them, or of substituting verbalism for knowledge. Many persons who sincerely believe in eternal or absolute truths which are not to be based on experience are naïvely unaware of the part language plays in shaping thinking. Our common words, particularly those dealing with truth and moral value, are descended from an ancient world in which primitive man cowered in fear before an evil universe. Unable to understand or manage the elemental forces which sometimes killed him and sometimes made life possible and pleasant, primitive man developed explanations which today we call myths. But these were truth to early man. He attributed absolute power to unseen gods, some beneficent, some evil. The edicts of these gods, as understood by men, were to be

defined only under severe penalty. The rituals and formulas developed became fixed, eternal. (Many persons overlook at this point that these "fixed and eternal truths" were originally developed by primitive men *out of their experience*.) But today the philosopher, the physicist, the mathematician, the biologist, and many others have penetrated many of the secrets of the universe. They find it not *fixed* and *eternal*, but *dynamic* and *emergent*. The facts and truths have changed, but the language of the ancient world persists to ensnare men's minds. Much honest confusion results from attempting, in discussing the dynamic emerging world of modern man, to use words with attached meanings derived from the ancient static world.

Since pragmatic and empirical thinking seems to disturb religious leaders more than most, it may be pointed out that the tremendous power of the ideals and teachings of Jesus resulted from the fact that these teachings sprang straight from the everyday experience of common people. They dealt with everyday experiential problems and in everyday language. If these ideals have lost power in the modern world as religious leaders tell us, it may be because formalized religion has made verbalisms of these teachings, because formalized religion often flatly refuses to apply the original teachings to current problems, that is, to relate religious beliefs to experience.

Discovering persistent truths more important than labeling them absolute or eternal. Many principles, particularly in the fields of philosophy and ethics, or in religion, with particular application to the problems of group living and individual morality, have been derived from real life situations so often and over so long a period of time that they are accepted as persistent truths.⁷ These persistent truths are incorporated into the cultural tradition of the given society or civilization. Such principles seem to be subject to slow change over long periods of time; but for any given society and time they are accepted as basic principles, truths, or values in ethics, morals, government, family life, even in more mundane affairs of economics, health and the like.

The argument over "eternal" truth and value, over "absolutes," is one for the metaphysicians. The important thing for the ordinary citizen and particularly for parents and teachers is to see clearly the principles which persist and which are basic and fruitful for better living as defined by the society in which these individuals live. To call certain statements on the one hand "eternal" or "absolute" does not impress a self-reliant, secure, and courageous mind. To call these statements eternal or absolute will not make them so if they are not. Many utterly absurd and thoroughly detrimental principles and creeds in religion, economics, politics, racial and social relations, and in education are preserved because

⁷ Little is gained by asking beginning students to struggle with the question as to whether "persistent" truths are revelations of some absolute truth, the *Ding an sich*, a noumenon.

of the false sanctity involved in the label "eternal" or "absolute." We must, of course, be on guard against accepting fleeting principles and creeds based on expediency, opportunism, a false application of relativity.

On the other hand, to deny certain statements the label eternal or absolute will not impair them if they should turn out to be absolute—if we could ever find out! To refuse to accept these as eternal or absolute will not affect their power to guide the conduct of intelligent individuals if the principles are clearly justified not by arbitrary edict but by their contributions to the betterment of living.

The important point will bear repeating. Each civilization has meanings, truths, and values by which it lives. These are *basic* and *fundamental* truths. There are, unquestionably, truths which are *persistent*. It is not necessary to raise the issues of *eternal* or *absolute truth*. It is very necessary always to raise the issue of *functional validity* or *functional truth*. Education must see that succeeding generations are introduced to these persistent truths as functioning useful items in the constant improvement of the on-going life of the community. Education must also make clear the process through which these functioning truths are derived and improved.⁸

SECTION 2

DIRECT EXPERIENCE SUPPLEMENTED BY VICARIOUS EXPERIENCE: CRITICAL ANALYSIS SUPPLEMENTS BOTH TYPES

The emphasis so far has been upon direct first-hand experience. Books and lectures, as well as teaching methods based thereon, have been minimized as sources of knowledge. The average person knows very well, however, that much valuable learning is in fact derived from books, lectures, pictures, maps, posters, museum exhibits, and from abstract symbolic presentations. The preceding paragraphs have indicated that this would be discussed in due time and we now proceed with that discussion.

Direct experience, omitting details for the moment, is the best method of learning. Some things can be learned only through experience. Some persons, usually the slower or duller, seem to learn most of what they do learn through direct experience. But most persons do not learn solely

⁸ The empirical account of the origin of knowledge, despite the liberal interpretation given in the foregoing pages, will be unacceptable to fundamentalists among the Protestants, and to Catholics, because of the omission of "revelation" as a source of knowledge. Instructors in Catholic colleges will have cared for this as a matter of course. Instructors in other colleges who have many Catholic students, and individual Catholic students anywhere, will find references dealing with this in Appendix A.

We may note here also that some of the interpretations of the nature of the learner in Chapter 5 and of modern educational psychology in general will not be acceptable to all Catholics. Others will find it quite acceptable but will wish to add to it. References in Appendix A cover this also.

through direct experience, nor do they learn some of the most important things which they know, by that route. Even the dull learn many simple but important items through vicarious experience. Persons of mental maturity, possessed of a high degree of ability to handle abstractions, possessed of a rich and varied background of direct experience, can and should learn many fairly complex things through vicarious experience. In fact, one of the surest indices of mental maturity is the ability to use abstractions and to learn by means of them. For this type of learner direct experience can become boring, wasteful of time and energy.

The learning of many things for many persons takes place through *vicariously* experiencing the *direct* experience of others. In many instances the long, laborious processes of discovery can be short-circuited. Learners can appropriate ideas, understandings, and attitudes through reading, pondering, and analyzing the experiences of others. It is even possible to reduce materially the time and labor necessary to the acquisition of a motor skill through observing demonstrations, reading directions, analyzing one's own attempts at direct experience.

Few of us will be fortunate enough to "experience" directly the delta of the Nile, the geography of India, the contents of the world's art galleries, the life of the nomads of Asia Minor. Furthermore, no one can experience four thousand years of history, nor the actual life of Shakespeare, nor the crossing of the Rubicon. A vivid and reasonably complete vicarious experience with Caesar may contribute, however, to the ability to cross one's own Rubicons as they appear in life.

One can experience the first meeting of the Continental Congress, the storming of the Bastille, the westward march of the pioneers *vicariously* through reading, reflecting, dramatizing, seeing motion pictures, and constructing implements. The *vicarious experience* must be a truly *active* process; the learner must re-live the events as far as that is possible. He must *hear* the tramp of the rabble on the cobblestones of Paris, he must *see* the light in the old North Church, must *hear* the shot heard 'round the world, must *thrill* with Lewis and Clark at sight of the Pacific. "I do not like it," said the little Scotch girl, with flashing eyes, "when the book says, 'The Picts and the Scots were driven back.'" Is it real to her? Is she experiencing and learning? We have all seen learners on all levels so absorbed in vicarious experience as to be oblivious to interruptions. Persons who faint at plays or motion pictures, who shudder and weep genuine tears and not those of sentimentalism, whose heart-beat and breathing are affected, are all having vicarious experiences which approach the direct. Chemical analyses show that vicarious experience brings about changes in blood composition and in body secretions which approximate the changes in persons undergoing the real experience. Untold numbers of high-school and college students have organized their later lives on the basis of vivid and compelling *vicarious* experiences. It goes without saying that merely to read passively, to

view without reaction, to be able to repeat from memory is no guarantee that the hearer has appropriated understandings or attitudes from the experience. Merely to go through the motions is not to have vicarious experience. The failure to profit from vicarious experience because of its lack of any degree of reality is to be seen in much teaching of literature and history in secondary schools and colleges.

The adjustment of vicarious experience to level of maturity is beautifully portrayed in Browning's poem, "Development."

My Father was a scholar and knew Greek.
 When I was five years old, I asked him once
 "What do you read about?"
 "The siege of Troy."
 "What is a siege and what is Troy?"
 Whereat
 He piled up chairs and tables for a town,
 Set me a-top for Priam, called our cat
 Helen, enticed away from home (he said)
 By wicked Paris, who crouched somewhere close
 Under the footstool, being cowardly,
 But whom—since she was worth the pains, poor puss—
 Towzer and Tray, our dogs, the Atreidai,—sought
 By taking Troy to get possession of.
 —Always when great Achilles ceased to sulk,
 (My pony in the stable)—forth would prance
 And put to flight Hector—our page-boy's self

 This taught me who was who and what was what;
 So far as I rightly understood the case
 At five years old, a huge delight it proved
 And still proves—thanks to that instructor sage
 My Father, who knew better than turn straight
 Learning's full glare on weak-eyed ignorance,
 Or, worse yet, leave weak eyes to grow sand-blind;
 Content with darkness and vacuity

The levels of direct and vicarious experience. Since the directness of experience has a fundamental effect upon learning, it is of value to know the approximate levels of remoteness from direct experience represented by types of vicarious experience. The following scheme is illustrative:⁶

I *Direct Experience—actual participation, doing, undergoing.*

II. *Vicarious Experience*

A. *Through direct observation*

1. Seeing actual events take place; handling concrete objects and materials
2. Seeing the events acted out as in drama or pantomime, by persons who represent the original characters and who use authentic costumes and settings

⁶ The modern school makes increasingly extensive use of many varied instructional aids through which to supply a diversity of vicarious experiences. These materials are discussed in connection with each subject in the special-method courses. A brief summary with exercises is given in Appendix B for students lacking contact.

B. *Through pictorial means*

1. Seeing motion-picture portrayal of events, of persons, of processes
2. Seeing photographs of persons, places, objects

C. *Through graphic means*

1. Using maps, diagrams, graphs, blue prints, and similar representations of objects, facts, and relationships

D. *Through verbal means*

1. Reading narrations and descriptions of persons, places, events, and things
2. Listening to narrations, descriptions of persons, places, events, and things

E. *Through symbolic representation*

1. Use of technical symbols, terminology, formulae, indices, coefficients, or other special recondite signs

Both direct and vicarious experience must be subjected to critical analysis to be fruitful. We come now to an even more fateful aspect of the problem. The very primacy and vividness of experience which is the thesis of this chapter leads a certain type of thinker into serious error. The primacy and vividness of personal experience is peculiarly convincing. It is accepted as automatically self-validating. Naïve individuals are actually unable to see the grave error in so accepting personal experience as final. Naturally sensitive and logical persons see the point for themselves. Most of us have to learn it—by experiencing the difficulties which ensue from the error!

Everyday conversation bears witness to this compelling power and self-validation of experience. "My experience shows . . .," "In my experience . . .," "I saw this with my own eyes . . ." The average citizen uses these terms with finality. There is no further appeal: his experience settles the matter. Naïve individuals even become quite angry when the validity of their experience is challenged. More intelligent persons are often genuinely confused.

Parents and teachers often repress young people by saying, "When you have had as much *experience* as I have had . . ." These adults are, as often as not, in gross error. There is no guarantee whatever that mere years of experience are years of fruitful educative experience, no guarantee that they beget superior wisdom. In fact "years-of-experience" is actually often a serious barrier to wisdom. The crucial point is the *kind* of experience with which the years have been filled. The *reactions* of the experiencer are vital. The *analysis* of experience is far more significant than any amount of simple *repetitive* experience. Many persons who claim "twenty years of experience" have often actually had but one year of experience—but they repeated it twenty times! Their experience may be the repetition of narrow, limited activities unenlightened by reading, observing, comparing; unleavened by doubting, thinking, analysis, let alone by experimental checking.

The catch lies here: personal experience by itself and for one person standing alone is inevitably limited, fragmentary, hopelessly biased by

prejudice and rationalization, limited by ignorance of the canons of logic, subject to direct and primary error because of the absence of instruments of precise measurement. To be valid, personal experience must be subjected to critical, logical analysis, checked against the collective experience of thousands of persons, subjected to check through controlled experimentation and by instruments of precision. The ordinary individual is wholly unaware of these pitfalls which are common knowledge to trained thinkers.¹⁰ *Even worse, the individual is often unaware that what he calls his experience is actually not his experience at all!* It is his opinion as to what he thinks his experience is. It is his idea about his experience, and not his experience actually.

Personal experience in simple, non-complicated, repetitive everyday affairs, experienced over and over by all individuals, is a reasonably reliable basis for knowledge. In complex and technological matters it is a common source of gross errors in knowledge and belief. It is perhaps significant that highly trained scholars and technicians rarely are heard to say, "In my experience. . . ." Often such men remain quietly outside social-group discussions which are based on "my personal experience." Often these scholars and technicians are regarded as poor mixers or odd. Perhaps they are merely bored with exchanges of uninformed opinion, no matter how vivacious the exchange!

Important implications for teacher training. The whole point is vitally important for beginning teachers. They will often hear from certain older teachers of the great value of methods based on "experience." Methods based on psychology and research are often decried as "theoretical." Many older teachers claim that methods "based on experience" get results. This is dangerous nonsense. Any and all methods, no matter how atrocious psychologically, will get results. What these teachers really mean is that they get certain results which they can see, can describe, and which they accept. A difficulty is that these are not all the results they get. They are often the least valuable results; and valuable or not, they are achieved at far greater cost than by reputable methods. The really serious aspect is that many wholly honest teachers do not know at all what results they are actually getting over and above the simple and trivial ones they accept. Methods based on unanalyzed experience do not carry proof with them. Pestalozzi, unquestionably a

¹⁰ It is not within the scope of this volume to enter into a detailed analysis of pitfalls in everyday thinking about experience; however, short, easily-read summaries are available.

William H. Burton, *Introduction to Education* (New York, D. Appleton-Century Co., 1934), pp. 133-137, 143-144, 146-147, 603-605.

A. S. Barr, William H. Burton, and Leo J. Brueckner, *Supervision* (New York, D. Appleton-Century Co., 1933), pp. 30-32; 868-869.

Carter V. Good, A. S. Barr, and Douglas E. Scates, *The Methodology of Educational Research* (New York, D. Appleton-Century Co., 1936), pp. 3-4. A more extended popular summary will be found in:

James Harvey Robinson, *The Mind in the Making* (New York, Harper & Bros., 1921).

great teacher, made some momentous contributions to method based on raw personal experience. He also made some historic blunders. On the basis of personal experience and self-validated results he could not distinguish the sound from the unsound.

Uncritical experience in teaching is almost more detrimental than beneficial. Literally thousands of teachers are, by their own very experience, actually prevented from learning how to teach well! They are prevented even from discovering that they are doing poor teaching. Unaccompanied by the critical analysis and study of researches, teaching experience is likely to be distinctly detrimental. Twenty years of experience in teaching is too often twenty years of experiencing the wrong way to teach the wrong things. Evidence is emerging which seems to indicate that theory is far more rampant among so-called practical teachers than anywhere else.¹¹ Many older teachers persist in going through teaching motions which have a purely capricious basis and which cannot achieve reputable learning. Teachers who rather aggressively rely upon "their experience" and reject "theoretical" methods seem to condemn as theoretical, methods (a) which they do not understand, (b) which they are unable to operate successfully, and (c) which necessitate the abandonment of long-used routines.

Modern teachers are aware of the limitations of experience. Fortunately, with many alert teachers, experience, instead of bringing smug satisfaction with supposedly "successful methods," spurs to analysis, criticism, and experimentation in a search for the correction of errors, the improvement of techniques. Instead of seeing perfection in the mediocre devices, the crudely constructed "practical" methods, they see rather the pitiful inadequacy of these things. Some pupils do not learn; that assignment did not go; interest suddenly died in a project; why does this error persist?; why do the pupils not know things which seem impossible not to know?; what is meant by functional unit?; how can you let pupils participate in setting up learning situations?; what are professors of methods talking about, anyway, when they say pupils should help organize the curriculum? The older uncritical teacher has an answer for all these. If pupils do not learn and lessons do not go, it is because the pupils are dull and lacking in background! Professors are "theoretical! With the mentally alert teacher the above-mentioned items cause questioning, the trial of new methods, the reading of new books, and the critical analysis of one's own procedures. Critically analyzed experience is extremely valuable and is often productive of valuable improvements in method; utilized in conjunction with experimental data, the results of analyzed experience will be sound.

The foregoing discussion of the necessity of analysis of experience for

¹¹ William H. Burton, *An Analysis of Practical and Theoretical Aspects of Teacher Training as Determined by Teacher Opinion*. Research in progress, Graduate School of Education, Harvard University.

learning can be duplicated in any human activity: rearing children, training animals, succeeding in a vocation or profession, getting along with the neighbors, raising flowers or vegetables, maintaining one's physical or mental health, and so forth. The teacher is by no means the only person to be led into stupid and absurd practices through reliance upon "experience." The business men and "statesmen" who pride themselves on being practical and who are so contemptuous of political and economic "theorists" have nearly wrecked the world. They make two blunders. First, they base action on narrow, fragmentary, misinterpreted practical experience, completely unaware of the powerful forces and influences which flow silently beneath the easily observed, practical, overt world. Second, they do not know that a *pure* theorist is very rare and serves very special research purposes. The *so-called* theorists are for the most part scholars who take into account the hidden forces and influences which "practical" men neither know about nor understand when told about them. "Practical" men, like their stone-age ancestors, blame undesirable conditions upon maleficent spirits, "theorists," "radicals," "unfair business practices," "there have always been depressions and there always will be," "enemies of our economic system," "that man in the White House," "too much government interference," "not enough government interference," "labor racketeering." The practical labor leader replies with his own assortment of whipping boys: "conspiracy of the money powers," "capitalist profiteering." These men have never engaged in the difficult, arduous, subtle activity of analyzing experience.

Alert teachers are increasingly avoiding the blunder of basing technique on limited practical experience unaware of the inescapable facts and principles of psychology, sociology, anthropology, epistemology, philosophy, which do not show on the surface but which *ultimately* determine results. It is to be hoped that some day teachers will never say "our experience" without meaning their critically analyzed experience.

Two important cautions concerning the balance between direct and vicarious experience. There are two important misconceptions which, while usually held only by extremists, do affect in some degree the practice of many teachers. Extremists among the moderns, the "ultra" progressives, very often speak and practice as if learning could come only through direct experience, as if everyone had to learn everything by direct experience. This is nonsense. First, highly intelligent learners, as has been said, do not have to learn everything that way. Even persons of reasonably simple intellect can do much valid learning without complete, direct experience. Second, to carry on all learning situations with real materials in actual lifelike situations is flatly impossible even if it were psychologically sound, which it is not. To the extent, how-

ever, that the extremists, especially in the early days of modern teaching, forced attention to the necessity of direct lifelike experience, they served an important purpose.

Extremists among the conservatives, particularly in high schools and colleges, make the opposite error. They often speak and usually practice as if all learners could learn practically everything worth while through vicarious experiences, particularly those of reading and listening. This too is nonsense. Scores of teachers, some of them "famous" and in well-known colleges, do a thoroughly incompetent job because of this misconception of the nature of learning. Certain types of learners, as has been noted, do learn much this way; others learn very, very little. Some learnings cannot be acquired this way at all. The evil of extreme emphasis on verbal learning has been touched upon in Chapter 2 and earlier in this chapter.

SECTION 3

THE RELATION OF IMPOSITION OF KNOWLEDGE IN ADVANCE OF EXPERIENCE TO LEARNING BY EXPERIENCE AS THE KNOWLEDGE IS NEEDED

Many parents and teachers are sincerely afraid of the proposition that children are to learn by real experience suited to their needs and by as-real-as-possible vicarious experience. They express the fear that certain "necessary" learnings will be left out unless imposed by adults who know better in advance what the child really needs. Let us look into this interesting and very real problem.

Caution concerning the imposition of knowledge and habits in advance of experience and understanding. The aim of education is commonly stated as "preparation for life." The reference by both lay and professional workers is usually to adult life. The method of preparing for adult life has commonly been through the imposition upon the child of "what was good for him." Adult views of life were imposed on children through adult-selected and adult-organized subject matter. Children for generations have been made to study various materials because "these will be useful when you grow up." Critical observers of this type of education have been aware of its tragic failure. Modern students have supplied ample evidence to show that the memorization of adult-organized static subject matter does not produce functioning learning.

Critics of the modern school often express the fear that "necessary materials will be left out if the curriculum is based on pupil purpose," that "things pupils will surely need when they grow up will be omitted." This fear is based upon definitely erroneous beliefs about (a) the process of learning, (b) the nature of the learning individuals, and (c) the meaning of "preparation for life."

Preparation for life is a growth process, not an imposition. Preparation for life is not something to be imposed upon the learner far in advance. It is rather the development of those understandings, attitudes, and abilities which the pupil needs *now* in the solution of his *current* problems. These turn out to be similar to those which he will need *later* in solving *adult* problems. Pupils will progress through levels of maturity, participating at each level in rich and varied learning experiences. Understandings, attitudes, and abilities needed in adult life begin their growth in the nursery. They will grow and expand through continuing experiences until the learner emerges into adult life. That is, pupils will pursue problems and projects of value to them now. To do this they will need to work together, to plan procedures, to make decisions, to understand differing personalities, to be tolerant of differences of opinion, and so on through hundreds of items. But all of these items are equally necessary in adult life. The learner progresses toward adulthood by developing through experience at each maturity level better insights, better attitudes, better abilities.

One of the most important factors in developing acceptance of deferred values is continuing experience in planning and executing projects of immediate, current, and personal value to the learner. He thus learns through direct experience the necessity of looking ahead for consequences, of taking actual reality into account, and of searching the experience of other persons for guidance. He learns to be cautious, to defer decisions until he has "prepared" sufficiently, and then to translate them into action. He learns the necessity of persistence and hard work now in developing skills and understandings necessary to the future completion of a project.

The learner arrives at adulthood prepared through natural growth processes instead of having a vague and meaningless "preparation" forced upon him.¹²

The same procedure holds for the more complex learnings necessary to adult adjustment to the political, social, and economic order of the day. The traditional school includes in upper grades abstract descriptions of community organization, services, and processes. There is much meaningless gibberish about the executive, the judicial, and the legislative branches of the government; about how to amend the Constitution; about Roberts' rules of order. The modern school knows that studying *about* institutions and processes is of little value. Direct observation and, wherever possible, participation are provided under the new methods. Even little children in the primary school are being intro-

¹² For further elaboration of this general view see:

William H. Burton, *Introduction to Education*, pp. 22-30, 33-36, 60-66.

Roy O. Billett, *op. cit.*, pp. 169-170.

L. Thomas Hopkins, *op. cit.*, pp. 344-347.

John Dewey, *Experience and Education* (New York, The Macmillan Co., 1938), pp. 44-52.

duced directly to the organized community in which they live through experiences appropriate to their ages.¹³

Natural limits to preparation through advance imposition. Further insight into the problem may be acquired by challenging the whole conception: is it even possible that pupils can "prepare in advance?" An examination of the activities of individuals at different levels of maturity supplies a clue. Does a four-year-old child "prepare" in advance for Christmas? Can he plan ahead something to be fulfilled at a much later date? He may talk about Christmas, express joy at prospective presents, tell what he expects to give mama and papa—and tomorrow have completely forgotten. Small children will hide a toy or treasured object in order to preserve it for use in activities "planned" for next week. Next week they have completely forgotten the use "planned in advance." They may even come on the hidden toy and wonder how it got there. Candy, cake, and other tidbits are hidden because they are to be preserved for "tomorrow." These things often spoil before they are remembered again. Now, however, a six-year-old boy, or a first-grade group may plan quite adequately for tomorrow's continuation of today's problem. Periodic reviewing of plans and accomplishments, with periodic revision of plans for the future, are necessary as the project goes forward. Such planning periods are found in all modern schools. Through them pupils learn to plan for ever more remote futures.

A ten-year-old boy will save money over a period of weeks for a knife and for fishing equipment to use on a future vacation trip. Farm children in their 'teens plan very well a year in advance for agricultural projects of value to themselves. A boy entering high school may look ahead to a given type of employment upon graduation. He then willingly "prepares in advance" four years of high-school work. Still others looking to advanced medical or legal training may willingly subordinate present desires to a long-time program of preparation in advance. *The ability to understand the necessity for learning in advance is conditioned in part by maturity.*

A second aspect of the situation is even more important. *The individual planning a program in advance of use is doing so in terms of present needs, problems, and decisions.* The students referred to in the preceding paragraph were not preparing in advance for a distant and uncertain future through blind mastery of materials which are meaningless at the moment. They are preparing in advance for a definite future, as definite as it can be, in response to a present decision. In order to follow a present choice and interest they will learn many things for use in the foreseen future. They will even search through materials from ancient history to zoology if they now think these may aid them

¹³ Recall the brief reference in Chapter 1 to the unit on "People Who Help Us." See also Chapter 21.

in the *future*. This is a totally different psychological situation from that of wading through ancient history and algebra under forced assignments and on the vague promise that the materials may be of use "some day" Instead of *being prepared in advance* the pupils will *learn to prepare in advance*.

The point has been made so expertly by Hopkins that the paragraph is reproduced in full.

This projection of present experience into the future does not represent deferred values. It is a comprehensive and thoroughgoing search for all pertinent information on which to make better decision in the present. From the standpoint of the learner facing his own situation there are no deferred values. Anticipating the future is merely raw material which he can use for a more thoughtful consideration of a present problem. This ability to project the future into the present varies with individuals. Beyond the normal limit of such ability there is nothing to work with except a great void. Forcing a pupil into this void to do things recognized by others but not by him has little desirable effect. While resource leaders should constantly bring their richer experience before unit-learning groups, it must be filtered through the child's ability to make it a real asset in the study of his immediate problem. Adults offer the concept of deferred values to rationalize forcing a child to learn the facts and develop the skills which they demand but which he cannot intelligently integrate within his immediate experience.¹⁴

The provisional imposition of necessary items on young children. The discussion so far has emphasized the difficulties, if not the impossibility, of imposing knowledge and habits in advance of experience and understanding. This emphasis is necessary to correct the gross errors in the opposite direction which characterize too much current education. It is perfectly clear to any honest observer, however, that there must be some provisional impositions at the beginnings of life and education. There are certain good and necessary meanings and habits which must be imposed on young children before they can possibly understand why. Convenience and even the safety of life may demand this. The crucial aspects are (a) the items imposed, and (b) the method of imposition. The items imposed should be

- (1) those the genuine necessity of which is apparent to competent observers,
- (2) those with which the maturing learner will eventually agree,
- (3) kept to an absolute minimum, and
- (4) regarded as not final but as tentative and provisional

Parents and teachers should be very sure also that the desired ends cannot be achieved by any other means than by imposition.

Parents and teachers are prone to impose any and all kinds of beliefs and habits on children. The impositions are too often clearly to save the adult inconvenience, not to educate the child. Impatience, egotism, desire for dominance, and ordinary ignorance account for much imposition on children. Hence, the impositions lack validity, a fact soon

¹⁴ L. Thomas Hopkins, *op cit.*, p. 345.

discovered by the growing child; the natural result is distrust of anything proposed by an adult. Parents and teacher may be assured that in the majority of cases the behavior of children can be properly controlled without resort to arbitrary prescription.

The methods of imposition are even more important than the items imposed. The desirable methods will

- (1) be those of social conditioning instead of those of dogmatic and arbitrary demand;
- (2) permit constant critical examination by the learner as he grows up,
- (3) lead the learner as rapidly as possible to see that the belief or habit imposed is sensible and desirable.

Too many persons impose even the desirable learnings dogmatically, closing the mind to that later critical examination which leads to rational acceptance. Each level of maturity should study within its limits the origin of individual and social impositions, the reasons for them, and how they evolved. Questions should be freely permitted and patiently answered. This keeps the learner's mind open so that later he may himself modify beliefs and procedures. Too often questions are ignored or arbitrarily silenced; explanations, refused.

The error in much school learning, home training, and religious teaching lies just here. The child grows up and discovers that some of what he was told earlier is not true; that the convenience of others rather than his own good was being served, that vested interests were looking out for their good, not his. Parents and religious leaders are prone to blame "loss of faith" on higher education. They might well look to the early teaching of religion and ideals.

The development of many virtues so earnestly desired by teachers and parents, such as honesty, taking responsibility, persistence through difficult tasks, truthfulness, is actually prevented by the arbitrary methods used in attempting to demand or *force* the virtues. Development of these desirable items is far more sure through giving children opportunity to exercise them in real experiences. Parents and teachers may be very sure that they are on the wrong tack if they find it necessary to insist on conformity in a great number of instances and if they constantly say in response to questions, "You do this because I say so . . .," "... because it is good for you," or "you'll see why when you grow up."

Occasional imposition on older learners. Many parents and teachers who agree to modern principles of learning through purposeful experience will still raise a question about some pupils and some learnings. They ask, is it not possible to *force* a pupil to keep on with a thing which he does not like and for which he sees no reason, until he does develop not only liking but understanding and skill? It is unquestionably true that this does happen. Nearly everyone has had the experience or has seen it happen with pupils. Many pupils who "hated art" or mathematics, or poetry writing, have become adept in those fields

because *forced* by some teacher to stay with it until interest and ability developed. Teachers who believe in this method of forcing, however, overlook two very important points. First, for each pupil who actually does develop interest and ability under arbitrary forcing, there are scores who develop instead a dislike, even a bitter hatred, for school, its methods, and learning. Many students have been driven from our high schools by these harsh methods of forcing. The evidence on this is clear-cut and voluminous. Teachers who believe in forcing interest must do so in the face of this serious detrimental result.

Second, the pupils who do develop interest and ability thereby prove the possession of latent ability for the field and that a reason for doing the work was found. *The teacher who believes in forcing may be supplying excellent evidence of her own inability to teach such pupils.* Continued inability of the teacher to tap the reservoir of pupil ability and to connect the material with the life interests of the pupil may be the real reason for the arbitrary and harmful method of "making him like it."

The present writer hesitates even to suggest that forced attention is ever safe, because scores of lazy, incompetent, uninspired, unprofessional teachers use this as an excuse to force anything and everything on pupils. It is also an excuse for grossly incompetent procedures in the classroom, for continued refusal of teachers to apply intelligence and ingenuity to their problems, for continued refusal to study their pupils, to investigate causes of learning difficulty. To be fair, however, it is doubtless true that sometimes pupils will appear whom a competent teacher cannot reach under ordinary conditions. These will be rare. If the teacher is reasonably sure on the basis of tests or other evidences that the ability is present, is reasonably sure that interest will eventually develop, and most important, is sure that the developed interest is worth while for everyday living, she might risk the methods of forced attention.

Summary on impositions. There will then be some imposition of knowledge and behavior patterns at various levels and in advance of experience and understanding. Parents and teachers must be sure, however, that imposition is necessary, and that the imposed item and method of imposition are reasonable. No damage is done if the learner can look back when he is older and agree that what was done was sensible and right. Damage comes from an uncompromising demand for conformity in things that do not matter.

Brief note on preparation in advance in the adult world itself. Incidentally we may note that the adult world which demands so vigorously that the school must force preparation for the future upon children, does a notoriously bad job in preparing for its own future. Thousands of adults financially able to purchase life insurance, that is, to prepare for the future, do not voluntarily buy it. It must be sold to them. Scores die without having made a will—failing, ironically, to

provide for the future of their children whom they insist the school must be sure to prepare! The structure of installment buying rests in part upon the inability of the adult to forego immediate pleasures and save for outright purchase. Adult society completely failed to plan for future urban developments, though the mounting problems were clear to experts, many of them even to the average citizen. City planning emerged when forced by the seriousness of some of the problems. Adult society has been utterly uninterested in planning to handle in advance the problems which were inevitable as we changed from an agrarian to an industrial order. Adult society has been criminally negligent in failing to plan for the future use of natural resources, for preventing political and industrial breakdowns, for military protection. The German nation prepared far in advance for World War II. That nation held to that preparation for the *future* because of a—to them—burning purpose growing out of *present* conditions. The United Nations neglected preparation because they did not see the reasons—though competent observers did—and later were forced to prepare under serious handicap as a result.

Experience, not imposition, the method of democracy. Principles of learning, to be valid, not only must be based on a sound theory of knowledge and of the learning process, but must also square with the aims of the society about one. An authoritarian society uses authoritarian methods of imposition and indoctrination since a docile, loyal type of individual and an obedient society are desired. Many religious bodies utilize principles of learning designed to secure individuals who accept uncritically and unswervingly the desired creeds and attitudes. Many of the early Greek and Latin city states used methods designed to produce critical and creative individuals. The very term "Socratic method" persists today. Some modern religious bodies use methods designed to produce individuals whose religious faith rests upon informed understanding rather than upon blind acceptance.

A democratic society is dynamic, experimental, emergent. The principles of democratic life have been presented often and ably in the educational literature. The student should have had adequate detailed discussion in introductory courses preceding this one; an extended summary will not be repeated here. Democracy desires individuals worthy of respect, willing to take initiative and responsibility in cooperative group living. Respect for the individual will be accorded those who earn it through worth-while contributions to common group activities. Democratic individuals need to plan and carry on projects cooperatively, to make decisions, to be tolerant of differing opinions. Individuals will avoid frustration and gain acceptance in the group through contributing each in terms of his interests, abilities, and maturity.

The method of functional learning through experience would seem clearly superior to study of the same assigned materials by all levels and

types of individuals—superior to working for standards imposed without regard to levels of growth or maturation.

A major experimental study of the effect of social climates (democratic, autocratic, laissez-faire) upon learning and personality. Education for democracy and by democratic methods is a crucial problem today. Little has been done to prove that democratic methods, widely upheld in theory, are better or poorer than non-democratic methods. Many school officers and teachers sincerely believe that the non-democratic methods of authority and imposition are better; many believe these methods to be necessary and inescapable. It is held that immature learners up through college may not be entrusted with democratic participation in classroom control and the development of learning situations. One major experimental investigation¹⁵ of this question is, fortunately, in existence. A few smaller studies are available, together with several good logical analyses. Other experimental studies will follow, it is hoped.

A number of school clubs and learning activities were placed in turn under three different teachers. One conducted affairs with as thoroughly democratic methods as possible, another with autocratic methods, while the third proceeded under laissez-faire attitudes and lack of controls. The groups of pupils were rotated between the three teachers for periods of time but were not informed concerning the experiment. Disinterested observers kept stenographic and photographic records of each meeting and of the individual members of the learning group. Analysis of these records plus analysis of reports made by the pupils themselves was the basis for conclusions drawn. In the autocratic set-up the leader was forced to take more and more responsibility as time passed, whereas in the democratic situation the pupils gradually took on more and more responsibility and carried it successfully. The democratic atmosphere caused pupils to be friendly, coöperative, talkative, more constructive in suggestions, and more appreciative in their comments. The pupils in the autocratic situation showed more tension, were either subdued or

¹⁵ Kurt Lewin, Ronald Lippitt, and R. K. White, "Patterns of Aggressive Behavior in Experimentally Created Social Climates," *Journal of Social Psychology*, Vol. 10 (May, 1939), pp. 271-299.

This study is also reported in some detail with photographs in Goodwin Watson, "What Are the Effects of a Democratic Atmosphere on Children," *Progressive Education*, Vol. 18 (May, 1940), pp. 336-342. A good brief account with excellent photographs appears in the *New York Times Magazine*, December 15, 1940. See also:

H. J. Bingham, "The Relation of Certain Social Attitudes to School Environment," *Journal of Experimental Education*, Vol. 9 (December, 1940), pp. 187-191.

R. B. Embree, Jr., "Children Compare Two Types of Educational Experience," *School and Society*, Vol. 50 (September 2, 1939), pp. 317-319.

L. Thomas Hopkins, "Seniors Survey the High School," *Teachers College Record*, Vol. 42 (November, 1940), pp. 116-122. Opinions of certain high school seniors regarding democratic practices in their schools.

O. H. Mowrer, "Authoritarianism vs. 'Self-Government' in the Management of Children's Aggressive (Anti-Social) Reactions as Preparation for Citizenship in a Democracy," *Journal of Social Psychology*, Vol. 10 (February, 1939), pp. 121-126.

defiant, were aggressive toward each other, expressing more hostility, resentment, competition. They did much less smiling, joking, and moving about. Under the democratic conditions individuality within group efforts developed well, whereas group work disintegrated under autocracy. Under laissez-faire conditions, aggressiveness, squabbling, and hostility increased. The product and achievement in the democratic situations were distinctly superior to the other two. Questioned as to which teachers they preferred, over 95 per cent of the pupils chose the one who used democratic methods.

Experience as method is in accord with the nature of the learning individual. This particular aspect of the general problem will be the subject of the following chapter.

SECTION 4

THE IMPLICATIONS FOR TEACHING

Hopkins¹⁶ cites the case of a college professor who was pleased because his son, though only in the primary grades, was already learning to spell. Some of his colleagues in the field of education pointed out that the boy was learning to spell words in fixed lists, predetermined, and handed out for mastery. The professor replied that he was not concerned with the methods. He wanted "results" and his son's perfect spelling papers showed that this school was getting them. Two years later the boy was failing about half the time in spelling and very heartily disliked spelling. Worse, he was failing also in other fixed knowledge outcomes in reading, geography, and arithmetic. It took some time for the professor-father to see that the *methods* by which his son learned to spell had much to do with whether he would *continue to learn to spell*—and in fact whether he would *continue to learn other things as well*. The boy had been taught by methods which do not approximate the way correct spelling is acquired and used in real life. The words learned served no purpose other than to pass the learner on to another meaningless and useless list. Children taught spelling, reading, and arithmetic in situations where the knowledge or skill is necessary to meet some purpose of the learner, to solve some problem confronting him, that is, through a lifelike experience, will keep on learning and liking to learn. The value and use of the material is immediately apparent in terms directly understandable by the child. In the illustration cited above the learning experience was not lifelike.

Parents are much disturbed these days because modern schools seem not to be teaching reading, writing, and arithmetic in the primary grades as adequately as "when I went to school." These same parents did not learn those things in the primary grades either—but they do not know that! It is quite true that modern schools are delaying much

¹⁶ L. Thomas Hopkins, *Interaction*, p. 6.

formal arithmetic until later grades. Younger learners are not only not mature enough (more of this in Chapter 5) but do not have a large enough *background of experience* to understand arithmetical abstractions. The modern school gives a large amount of contact with informal functional arithmetic, the use of number in situations real to the child and understandable by him. It is quite true that primary pupils in modern schools do not make as high scores on standard tests in arithmetic as do pupils in traditional schools. But the tests are misleading. The high-scoring pupils often cannot apply the isolated skills they have mastered. Many inimical attitudes and incorrect habits of calculation are overlooked by the tests. Finally, and most important, learning memorized in isolation from real situations soon fades. This latter fact is true on all levels. A recent study at Dartmouth¹⁷ showed that many students who passed the college entrance board examinations successfully later proved quite unable to remain in college. These students had gone to famous preparatory schools which pride themselves in "getting their students through the college entrance examinations." Crammed for these examinations beyond their true learning capacity and ability, the students could "pass" the tests but later indicated that functional learning had not taken place.

Children who learn arithmetic later, when mature enough, when possessed of adequate experience, and who learn through lifelike experiences, soon surpass pupils in traditional schools. Even the skill of reading, thought by many parents and teachers to be the prime vehicle of much learning, cannot be acquired until there is a sufficient background of *experience*! Many parents and teachers are fooled because primary children can say words, can "read" through a piece in the reader. Tested for comprehension it is shown that the children do not understand the meaning of the words—hence have not truly read. The parents of a small boy well below school entrance age said they had "taught" him to read. He could read from any book, the *Atlantic Monthly*, or the newspaper. The writer handed the boy a book printed in Spanish and one printed in French. The boy read these as easily as he did the English—and with the same degree of comprehension! The parents learned the difference between reading and saying words. A supervisor once convinced a teacher that the glib "reading" of her first graders was not reading at all by cutting the page in half, turning over the top half only. The pupils then read the story which went with the picture on the top half of the page. The words were not even in sight. The pupils had memorized the appropriate rigmarole to go with each picture and reproduced it on cue. Before reading can be meaningful,

¹⁷ E. T. Chamberlain, Jr., Report of a Four-Year Study of the Accomplishments at Dartmouth College of Students in the Class of 1940 from Public and Private Schools (mimeograph material, 1942). See also *Did They Succeed in College?* Vol. IV, Adventure in American Education (New York, Harper & Bros., 1943).

there must be a rich and varied background of experience with things and processes. Again learning rests upon experience. From this experience the child acquires a store of meanings. He now learns easily the labels for these: namely, words. He can then translate words into meanings—can read. Hence it is seen that the very technique which so many think is a *substitute for experience is itself not possible until sufficient experience has been lived through.*

There is very much more to be said about the implications for teaching of the fact that learning rests upon experience. All the chapters in this volume are devoted to this. For the moment we will emphasize that a teacher's methods will be determined in part by her conception of the origin of knowledge—by her epistemology. Her methods will be determined in part by her conception of learning and of the learner. Finally her understanding of the nature and process of democracy will affect her practice.

Teachers who believe that knowledge is static, is pre-determined, and is safely filed away in written sources, will assign segments of this organized knowledge to be learned, that is, to be memorized. These teachers will then quiz the pupils in oral recitation, have them write papers from day to day to see if the material is well remembered. At the end of given segments they will quiz on a grander scale in final examinations. These teachers overlook the fact, or do not know it, that this material assigned to immature learners was compiled and organized by mature adult minds.¹⁸

Teachers who believe that knowledge arises from experience, out of doing, trying to do, undergoing, in the course of pursuing vital purposes will regard the assign-study-recite-test procedure as a form of mumbo-jumbo. Teaching-learning situations for these teachers will be as much like real-life, purposeful activities as possible. Pupils will participate in setting up situations, the answers to which the pupils will need and want. The goals recognized by the teachers will be growth in desirable understandings, attitudes, and abilities and not memorization of subject matter. The teacher knows these goals cannot be achieved quickly or in final form. She regards them as directional-process goals, which in simple language means goals which direct the process of learning and which are achieved by successive levels of maturity through the continued process of experiencing. These teachers will sometimes test and examine, to be sure, but will chiefly be concerned with the appearance of the desired learnings in the behavior of the learners. They will make much use of behavior records, observation outlines, interviews, interest inven-

¹⁸ In this connection an interesting sentence occurs in Vera Sanford's *A Short History of Mathematics* (Boston, Houghton Mifflin Co., 1930): "Euclid's work was more formal than are the elementary geometries of today. He was writing for mature thinkers who needed no introductory work to convince them of the value of the subject."

tories, etc. Even the skills will not be tested by standard tests but by applications. Standard and other tests may serve a diagnostic purpose.

Each group of teachers will be talking nonsense as far as the other group is concerned. Which group is right depends upon the validity of the epistemological, biological, and psychological research by scholars in those fields. Put simply, this means that those teaching procedures will be the sounder which more nearly approximate the procedures through which knowledge, ability, and attitude actually come into being. Currently, knowledge is believed to emerge out of experience and the analysis of experience.

But all experience cannot be direct. What are the implications for teaching of the fact that vicarious experience of different degrees is necessary? In general, pupils can learn adequately through vicarious experience (a) if they possess a rich and varied background of direct experience related to the vicarious material, (b) if they possess a degree of mental maturity sufficient to handle abstractions, to apply generalizations, to learn thereby, and (c) if the teaching techniques are based on awareness of the shortcomings of vicarious experience. The teacher in framing these techniques must take into account the necessity of pre-testing or otherwise becoming aware of the learners' previous background, must have wide knowledge of the general environment, the social and economic level from which the learners come. The teacher and the school will endeavor to supply as much realia as possible, to supplement gaps in background as rapidly as possible.

- More specifically, learners of any age can learn from vicarious experience, particularly verbal presentations, provided their previous experience has given them a basis for understanding the written or spoken material, and if teachers will endeavor to keep the vicarious experiences as far up the scale toward directness as circumstances permit.

The more direct the experience, the greater number of pupils will profit, particularly in heterogeneous groups; the less direct the experience, the fewer will profit and the greater will be the diversity of levels of understanding and appreciation. More direct methods need to be used with young children, dull children, less well educated and less sophisticated persons, less direct methods may be used as maturity increases, with the brighter pupils, and with better educated individuals. In some instances on upper levels and with certain types of learning it may be that the more abstract methods are the more valuable. The greater diversity of reaction will not merely reveal the individual differences among the learners, but bring out many different contributions, original suggestions, many individual slants on the problem.

Many schools are still using traditional subject matter and following a theory of learning which advocates memorization of that subject matter. However, even in such situations learning will be improved by the effort to use the processes of experiential teaching and learning within

the subject matter framework. Suggestions on this will be found in Chapter 10 after the implications of the two types of teaching have been more fully developed.

Suggestions for avoiding verbalisms as outcomes. The preceding chapter and this one have raised a fundamental teaching problem, namely, the dangers of verbalism. The substitution of meaningless words for facts and processes in the world leads to many ludicrous blunders in life and in school. The problem deserves separate summary because of its far-reaching importance. This simple summary can be supplemented by anyone from his own experience. The dilemma in the situation is that despite the obvious dangers of verbalism the use of verbal methods and of learning through words is not only legitimate but necessary in school. Education could not be adequately achieved without use of this vehicle of vicarious experience. Common-sense definitions of these terms have been assumed up to this point. We may now be more explicit. The following non-technical definitions will serve as a basis for organizing thought.

A verbalism is a statement which is empty of meaning. It is an empty sequence of words. Words are substituted for meanings and facts. The statements sound good, they are socially acceptable; they ease one past a situation; but they have no reference to facts or to action based on the words. *Vox et praeterea nihil*—a voice and nothing more. The average citizen recognizes the situation as well as the psychologist. He uses the terms, "lip service," "clap-trap," "empty words."

Verbal methods of teaching are methods which use words, oral or written, through which to convey meanings. Verbal methods are necessary. Verbalism can be avoided if verbal methods are based on (a) experience known to be possessed by the learner, (b) a level of maturity sufficient to handle abstractions, and (c) teaching methods designed to avoid the pitfalls of vicarious experiencing.

The end result of any type of experience can be either a verbalism or a genuine meaning. Genuine meanings should result from reputable verbal methods as noted above and elaborated below. Verbalisms usually result because of (a) violations of those methods, or (b) imposition of the verbalism in advance of, with disregard for, or in defiance of experience, or (c) the teacher's naïve, uncritical acceptance of verbalisms which confirms the habit of verbalizing.

Brief summary of general and specific techniques. First, use pre-tests of information, attitude, interest, questions, desires, or what not. Many techniques are available, varying from simple vocabulary tests to detailed interviews: fact tests, interest inventories, essay tests, problem-situation tests, and many others. These are summarized in Chapters 17 and 18, while the general pre-testing technique itself is described in Chapter 11. Knowledge of the background and present status of the learner enables us to keep learning activities in line with his understanding and ability, thus avoiding the unnatural pressures which drive to verbalism. Second, use life-like learning situations with many varied activities. This practice ensures many and varied approaches to meanings and attitudes which is a direct influence against verbalism. The school

should utilize all experience now possessed by the pupil and give him many more experiences. This serves to enlighten verbal methods and to work against verbalism. Chapters 10 through 14 summarized this aspect.

The foregoing are general major techniques. A number of very specific classroom techniques may also be suggested. The *first* of these is that the teacher must consciously refuse to accept meaningless repetition of what has been read. It is staggering to see in some rooms, elementary pupils copying word for word from encyclopedias and other reference books. These materials are then read as class reports and many teachers seem utterly unaware that the pupil might as well be reading Chinese as far as any meaning goes. In a report on the cocoa industry, a child read glibly that "oil is expressed from the bean under pressure." Neither teacher nor pupils fluttered an eyelash. Later questioning developed that the boy had not the slightest glimmer of meaning for the sentence. He could not even guess what it might mean. He had copied from the encyclopedia. This might be said to be "education impressed on the bean under pressure." The teacher in question was quite dumbfounded that any one should question the procedure used. Later under sympathetic supervision she corrected this difficulty with enthusiasm.

Second, skilful teachers will ask pupils to state their meanings in simple everyday words which they use all the time. This is a simple direct test of understanding or meaning. A verbalist cannot meet it.

A *third* effective method is to ask pupils to illustrate their meanings with concrete cases from their own personal experience or observation. A verbalist ordinarily cannot do this. *Fourth*, particularly on upper levels, students may be directed to read several accounts, preferably some which differ somewhat or are in part contradictory, and to derive a meaning or understanding which can be defended. *Fifth*, pupils may be asked to evaluate critically their own statements, to list evidence, or otherwise support their understanding against opposite views and against demands for criticisms of assumptions underlying the meaning. All these devices direct pupils to those learning processes through which understandings instead of verbalisms may be derived. Analysis, critical evaluation, logical and factual support are substituted for uncritical acceptance, naïve unawareness of assumptions, and for lack of logic and fact.

DISCUSSION QUESTIONS

This extensive chapter contains much material new to students who lack introductory courses. The sections may need to be taken separately with supplementary reading in some cases. The writer has found it very beneficial to devote a class hour to free discussion based on student questions.

General Questions for an Initial Discussion

1. Dewey and his students make wide use of the term, "Learning is the reorganization of experience."

- a. If you have met the term before, explain its meaning and relate it to the definition of learning in this chapter.
 - b. If you have not met the term before, attempt to interpret it in common-sense terms and relate it to this chapter.
2. Psychologists agree that learning is a social process. What are the implications of this statement? Many college students disagree with this statement. Can you see why?

Questions for Section I

1. Illustrate naïve errors on the part of children and adults owing to lack of given experience. Do likewise for errors or for differences of opinion owing to experience in differing environments.
2. Illustrate with specific cases the difference between opinion based on personal experience and conclusions based on technological data. Any field, health, housekeeping, child-rearing, government, business, may be used.
3. Illustrate from experience or observation the curious misunderstandings which children and adults fall into when words beyond their experience appear in printed materials.
4. Individual students may report individual articles similar to those in footnotes 1-3, p. 64 and note 5, p. 69.
5. The text refers to factors which might limit the experience of an individual, hence limit his learning and information. What might some of these be?

Questions for Section II

1. Read over the lettered statements below. Select one or two which interest you particularly, or on which you think you can get decided responses from an adult. Select two or three friends, avoiding anyone connected with schools or teaching. Select some of good and some of poor education. Explain that they can assist you with a little experiment by expressing their opinions on some questions. Do not explain in detail what you are doing.

Get the expression of an emphatic opinion if possible. Then be sure to pin them down with the questions, "How do you know?"—"What makes you think so?"—"How do you know it works out the way you say?"

Bring one or two of the best answers to class and be prepared to show conclusively and in detail that these people did or did not have reliable scientific data back of their answers. Apply the six characteristics of critical opinion (see below) to the statements.

- a. Do you think that students should be *required* to study Latin or algebra?
- b. Is six years of age the best time to start to school? Could it possibly be five, or even four, or delayed until seven or nine?
- c. Was teaching better or poorer, as a rule, when you went to school than now?
- d. Who is probably the best judge of a child's mental prowess: his mother, who has reared four children, a well-trained school teacher who has taught him for six months; a child psychologist who has examined him twice for two hours?
- e. Are our schools better than, poorer than, or about on a par with European schools?
- f. Are boys or girls as a rule the brighter in school?
- g. In an ordinary group of thirty children, say high-school freshmen, about how much faster do you think the fastest could read than the slowest?
- h. Do you think that nearly all children could be taught to draw acceptably if taken young enough and taught correctly?

The difference between systematically critical opinion and mere personal opinion may be sharply summarized in six significant points. These points are developed in detail in the references in footnote 10 on page 78, which may be consulted by students who wish further discussion.

Critical opinion is more	Precise (mathematically or verbally)	} than personal opinion
	Objective	
	Sufficient	
	Impartial	
	Expert	
	Systematized	

2. Explain in some detail the processes involved in the illustrations you gave for Question 2 in Section I, if you did not explain them in citing them.

3. Explain in an organized manner and in considerable detail, and with illustrations, the fundamental reasons why "personal experience—observation—what I saw with my own eyes—what I have done for twenty years," is so often wrong. (There are about eleven possible points to make; the student should try to get at least seven.)

4. Watch for the naïve self-validation of results by teachers. Report cases in detail including evidence seen by you but overlooked by the teacher (In all such cases protect the persons involved by omitting names and locations.)

5. Watch for cases in which individuals in ordinary affairs, or teachers in discussing their teaching problems, report as experience what is actually not their experience at all, even though the reporter is wholly honest in thinking that it is. Show analytically how the report is really an opinion about, or an interpretation of, experience and not experience itself.

6. Watch particularly for teachers who discuss their experience in keenly critical and objective manner, who indicate realization that constant analysis of what happened and why is the key to growth. Report in detail observations or conversations.

Questions for Section III

1. Illustrate safe and desirable cases of imposition on young children; on adolescents, on adults. Do likewise for undesirable and detrimental imposition. Outline your analysis and arguments fully.

2. Explain the meaning of the term "directional-progress goals" used once in this chapter. Use specific illustrations. If it is not clear, ask for illustration and explanation. The term reappears later in more detail.

3. Read critically the two paragraphs in the middle of page 102, and also page 118 in Rugg and Shumaker.

a. Make an organized list of the implications for teaching.

b. What changes would need to be made in the administration of schools, in curriculum and method, or in any other aspect of the teacher-learning situation?

Questions for Section IV

1. What is the meaning of the statement, "To know by heart may be not to know at all"?

2. Examine at this point Discussion Questions 7, 8, 9, and 10 at the end of Section I in Chapter 2, and Discussion Questions 1 and 5 at the end of Section III in Chapter 2. These questions may be discussed again if any students wish to change opinions voiced during the first discussion, or who wish to ask further questions of their own.

3. An advanced and interested student, preferably one majoring in English, may present a review and comment upon Chapter 11, "Language and Meaning," of the *Forty-First Yearbook*, Part II of the National Society for the Study of Education. In small, well-prepared classes this chapter may be read as a basis for a class analysis.

CLASS REPORTS

1. Verbalisms are decried as learning outcomes. At the same time it is clear that verbal methods and verbal learning must be widely used. Verbal learning is, as pointed out above, quite satisfactory under certain circumstances.

a. List and analyze one or two crucial major *educational* problems raised by this situation.

b. List and analyze three or four important *teaching* problems confronting the classroom teacher in this connection.

2. Work out a small observation outline based on the content of this chapter. Observe a number of teachers and note the extent to which they use:

a. Direct and vicarious experience by levels.

b. Vicarious methods when direct methods would be possible.

c. Techniques designed to make verbal methods safe.

READINGS

ALBERTY, H. B., and THAYER, V. T., *Supervision in the Secondary School* (Boston, D. C. Heath and Company, 1931), Chap. 12, especially pp. 260 ff. Summarizes three theories of learning and presents a fourth, namely, interactive experiencing. (Will aid with next two chapters in this volume also.)

BILLETT, Roy, *Fundamentals of Secondary School Teaching* (Boston, Houghton Mifflin Company, 1940), pp. 141-143. Very enlightening on difference between academic and non-academic experiencing.

BODE, Boyd H., *How We Learn* (Boston, D. C. Heath and Company, 1940), Chap. 1. Indicates necessity of inquiring carefully into nature of learning.

COMMINS, W. D., *Principles of Educational Psychology* (New York, The Ronald Press Company, 1937), Chap. 11. A loosely organized, encyclopedic presentation. Many excellent items. Must be read with discrimination. (Valuable with next chapter also.)

DEWEY, John, *Experience and Education* (New York, The Macmillan Company, 1938), Chap. 1 and pages 44-52. (Valuable with next chapter also.)

HOBAN, Charles F., HOBAN, Charles F., Jr., and ZISMAN, Samuel B., *Visualizing the Curriculum* (New York, The Cordon Company, 1937).

HOBAN, Charles F., Jr., *Focus on Learning: Motion Pictures in the School* (Washington, D. C., American Council on Education, 1942). Excellent material on verbalism will be found on pages 6, 27-37, and 85-102.

HOPKINS, L. Thomas, *Interaction* (Boston, D. C. Heath and Company, 1941). The sections in this volume are so valuable that they will be listed and annotated separately.

Pages 41-49; 80-92. Excellent on differentiating the subject from the experience curriculum, plus historical explanation of background of each.

Pages 207-209. Simple definition and explanation of experience

Pages 344-347. Excellent statement on preparation in advance of understanding; on deferred values.

Pages 172-205. Chapter 5, "How Does Philosophy Affect the Curriculum?" Vivid, concrete statement.

Index. Use for references on flexibility of curriculum and beliefs.

- MACOMBER, F. G., *Guiding Child Development in the Elementary School* (New York, American Book Company, 1941). Chapter 1 contrasts two schoolrooms on elementary level.
- MCGAUGHY, J. R., *An Evaluation of the Elementary School* (Indianapolis, Bobbs-Merrill Company, 1937), pp. 136-142 Good simple statement
- MOSSMAN, LOIS C., *The Activity Concept* (New York, The Macmillan Company, 1938). Chapter 9, pages 157-175 and the Appendix, pages 177-184, contain first class account of the development of the activity concept, hence of extension of range of experiencing in learning.
- RUGG, Harold O., and SHUMAKER, Ann, *The Child Centered School* (Yonkers-on-Hudson, World Book Company, 1928), pp. 5, 40-49, 58-59, 62, 96, 102-103, 118, 256, 310, 313.
- WHEELER, Raymond H., and PERKINS, FRANCIS T., *Principles of Mental Development* (New York, Thomas Y. Crowell Company, 1932) Interesting statement but very misleading if not read with extreme care.

4

* The Characteristics of Educative Experience

The illustration of natural learning given in the first chapter was said to have certain desirable characteristics. Chief among these were that it was (a) unified around a purpose real to the learner, (b) continuous with the on-going life of the learner, (c) interactive with the environment of the learner, and (d) contributory to the integration of the learner.

The illustrations of in-school learning in the same chapter showed similar characteristics. The class studying stage design proposed the project for the semester, namely, the designing of scenery, settings, costumes, etc, for a musical comedy written by a fellow student. This was purpose real to the learners. The undertaking was clearly continuous with their on-going experience, an outgrowth of their everyday living, and conducive to desirable learnings. Extensive interaction with and in the environment was necessary. Finally it was clear that most of the pupils were acquiring functional learning outcomes; they were engaged in an integrating process. This was true also of both the first-grade class studying the interdependence and coöperation of community helpers, and of the fifth-grade class studying health protection.

The illustration from high-school study of United States history differs in that the purpose did not grow naturally out of the everyday activities of the learners but emerged out of the stage setting by the teacher. The teacher ingeniously made the connection between subject matter and everyday interests and problems. This is wholly legitimate. The ability to make such connections is a marked asset of competent teachers. When the pupils see such connections and accept the purpose, continuity, interaction, and integrating activity are possible and very probable.

The evidence supporting these characteristics of educative experience. How do we know that these are in fact the characteristics of learning experiences? First, the similarity between these and natural-life activities was briefly summarized in the latter part of Chapter 1. Second, further evidence will be presented in the following chapter in connection with the nature of the learner. Third, various chapters will contain reference to individual studies and to summaries of research which supply evidence that the type of learning experience here described is superior to the more formal, imposed, assigned, discontinuous experiences in-

volved limited, formal interaction with a limited, academic environment.

The development of this chapter will not be interrupted to summarize the evidences available as indicated above. One very important point, however, does need to be clarified before proceeding: namely, the difference between educative and miseducative experiences. Obviously, purposeful, continuous, interactive, and integrating experiences can have detrimental as well as beneficial results.

The outcomes of learning experiences must be socially desirable. Everything one does is experiencing. All living is experiencing. Everything one does produces learning willy-nilly. But not all learnings may be desirable. Learning experiences may be educative or miseducative. Specifically, purposeful, continuous, interactive, and integrating experiences can produce better burglars as well as better bishops. More ardent totalitarians can be produced as easily as more devoted believers in democracy. How then do we discriminate between experiences which are likely to be educative and those likely to be miseducative?

We tend to say immediately that making better burglars, more skillful looters of the public treasury, more adept exploiters of the public represents an undesirable type of learning, growth, education. Why? This query leads directly to the ultimate aim of education, hence to the end point of learning experiences. Each civilization has a cultural tradition. Each civilization sets up an ideal individual and an ideal society as its goals. We have accepted the democratic individual in a democratic society as the goal toward which education will contribute. The democratic individual is one worthy of respect who realizes his unique personality within a cooperative society which holds the common good to be paramount. The worth of persons is determined in part by the individual's contribution to the common cooperative effort toward a better society. Desirable learning experiences are those which in the long run tend to encourage growth toward accepted democratic understandings, attitudes, and abilities.

SECTION I

EDUCATIVE EXPERIENCE IS UNIFIED AROUND THE PURPOSE OF THE LEARNER

Critics of modern education have long said that modern or progressive education "lets the pupil do what he wants to do." This unfounded criticism represents not merely a popular error but indicates also fundamental ignorance of or misunderstanding of a basic principle of life and learning. Activity does not take place without some need. Learning does not take place without interest of some sort in the process and outcome. Many older teachers argue about pupil interest. Some say they will not cater to the interests of pupils. Such teachers completely miss the point.

The problem is not whether children are to learn with interest or without it. They *never* learn without it. The real problem is to determine what kind of interest it shall be and from what it shall be derived. *No competent and responsible educational leader has ever said anywhere at any time that the pupil is to do what he wants to do.* It has been said, however, that the pupil should "want what he does," if he is to learn.

Purpose is not to be confused with impulse. The critics quoted above have fallen into their error through failure to distinguish among impulse, desire, wish, and a purpose. The first three are often fleeting, capricious, superficial. Even when they are not, they are but the initial phases in the development of a purpose. A purpose, in contrast, is a consciously selected goal. Not only is it consciously selected, but it is selected with knowledge of the possibility of fulfilling it, with knowledge of the requirements for fulfilling it, and with knowledge of the probable consequences of failure. Postponement of overt action until judgment of possibilities and consequences is made is necessary to transform an impulse into a purpose.

The pursuit of fleeting, capricious impulses is not only not educative, it is likely to be definitely miseducative. To go through the careful process of defining a purpose, of observing the conditions which will affect fulfilment, of weighing consequences, not only leads to educative activity but is in itself one of the most important series of educative activities.

Purposes emerge out of activity initiated by need for adjustment. Purpose does not initiate experience, nor does purpose necessarily emerge early in an activity. The initiating and sustaining cause of experience, according to biologists and psychologists, is some sort of strain, stress, or tension in the organism. Something is amiss or awry. A balanced, comfortable, complacent situation is disturbed either through a change in existing relationships, an interruption or interference from outside, or the emergence of a new factor. The terms *strain*, *stress*, or *tension* should not dismay the beginning student. These words are used technically here. In common-sense terms they merely mean situations in which individuals need to take action of some sort in order to get rid of the tension and to restore the normal, desired state of comfortable equilibrium.

The concepts here are difficult for beginning students meeting them for the first time, hence further explanation is given. On the *physical* level the tension or stress may be called a loss of physical equilibrium. Consider for a moment a stone resting on a hillside. It is in equilibrium. No action takes place. Rain eventually washes away enough dirt so that the stone becomes physically unbalanced; it is out of equilibrium. It then rolls downhill to a new base. Equilibrium has been reestablished. Now, the stone, being an inanimate object, does not have needs,

purposes, does not take action consciously. Figurative language, however, and some admitted oversimplification will greatly aid the student in seeing the fundamental point here. We may say the stone was "uncomfortable"; it "needed" to roll downhill; hence, it "took action" "had the experience" of rolling downhill for the "purpose" of restoring equilibrium. This metaphorical and oversimplified statement is as clear a statement of the initiation of purposeful activity as is possible. Naturally the situation on the human level is much more complex as we shall see shortly. We may get ahead of the story, however, to point out that ideal learning situations arise when the pupil is placed in a situation where *he* needs to take action of some sort to find out something *he* needs to know or to acquire some skill *he* needs and *sees* that he needs. The traditional school too often demands that the pupil take action for purposes *someone else* sees, but not the pupil. This is rolling uphill!

On the *animal* level the tension results from some need for adjustment, physical or biological. The animal needs something to maintain life. Activity results. He does something about it. He may seek food, grow a heavier coat, migrate, hibernate, or fight. He has experiences resulting from adjustment, need, or tension. Through these he learns many things.

On the *human* level the tension results from loss of mental as well as physical equilibrium. Situations arise in which the comfortable state of the organism is disturbed. The individual may or may not know what is the matter. He is vaguely disturbed, is uneasy, wishes he knew what to do. He really needs to find out something, to achieve some attitude, to acquire some skill; but he does not know this yet.

The individual may or may not develop a purpose out of a given situation. He may ignore the stress and dismiss it. He may meet it through routine activity and accept an inadequate solution. He may take action guided by uncritically accepted wishes, desires, and impulses. But he may be dissatisfied with incomplete disposal of the tension. The routine or uncritical activities designed to meet it may be deflected or obstructed. The experience and the activities now become matters of conscious concern. The individual, like the stone, needs to take further action. He needs further experience.¹

¹ The writer is greatly indebted to Dr. John P. Wynne, who contributed to the paragraphs here through conferences, letters, and through his pamphlet, *The Educative Experience* (Farmville, Va., Farmville Herald Press, 1950), which is probably the best available statement in print. Wynne coined the term "Principle of Experience Need," to designate the beginnings of learning experience on the human level.

The term *purpose* must be most carefully interpreted in all educational discussions. The term *need* may actually be a better word, though *purposeful activity* does best describe the fundamental aspect of *learning*. If we substitute the phrase *fulfilling an individual or social need for fulfilling a purpose*, we are probably nearer the truth for *education* and have not weakened the emphasis upon *purposeful activity for learning*. Pupils *need* many things they will not think of. The course of study and the teacher will suggest many things related to the classroom or on-going life experiences

The individual "determines to do something about this." When he comes to this stage of consciously determining to do something about it, a purpose is emerging out of the initial confusion of feeling and activity. It needs further definition, analysis, and evaluation. The preliminary impulses need to be criticized, reviewed in imagination, and the consequences need to be judged. A line of action judged to be desirable needs to be deliberately selected from several choices. Further planning then continues. *All educational activities whether they be called units, enterprises, undertakings, assignments, or what not, should be such that the individual finds a purpose in them.* The purpose selected then is the motive or drive for continued action. A purpose can come only from the individual himself; however, activities in which he may find purposes may be suggested and initiated by any factor in his environment. The teacher very often, perhaps typically, proposes activities out of which the pupil under guidance may construct purposes. The details of initiating learning activities are treated in the chapters on the unit and the assignment.

Recall of the illustrations in Chapter 1 may aid in making this more concrete. The boy who learned to bat came to school probably in a comfortable, complacent frame of mind. He was at peace with the world. But the new environment set up new goals, gave prestige for certain achievements. The boy could have gone about his business undisturbed by these factors in the environment; however, he was dissatisfied, he was thrown out of mental equilibrium. He was under tension. He gave the situation thought; he worried about it. Perhaps he tried various activities designed to give him security and satisfaction in the new environment. Eventually he chose to get on the ball team by learning how to bat. A purpose had emerged. This led to a continuous, interactive series of activities.

The children who learned about health protection were interrupted by various happenings, vaccinations, health examinations, and the like. These differed from the normal routine activities. The tension here was probably a pleasant one. They asked questions. Why does the doctor do this? How does vaccination keep us from getting sick? Out of these random inquiries, the teacher skilfully caused a purpose to emerge which the children seized upon and accepted. In the class which designed the scenery and costumes for the musical comedy, the purpose arose almost immediately out of the normal activities of initiating a course in design. The first graders, who studied community helpers, were first attracted by puzzlement over who could have cared for their plants during the

of the child which will be *accepted* immediately by learners as their *purposes*. This is in no sense to be interpreted as *imposition*. For further explanation, the reader is urged to glance through William H. Burton, *Introduction to Education* (New York, D. Appleton-Century Co., 1934), pp. 29-30, 35-36 (particularly 36), 62-65, and 111-112; also John P. Wynne, *The Teacher and the Curriculum* (New York, Prentice-Hall, Inc., 1937), pp. 22-29.

vacation. To them this was an odd variation of normal routines with which they were familiar. Their mental equilibrium was thoroughly disturbed, as is the case with little children. Again the tension here was probably a pleasant and interesting one. A welter of questions and suggestions arose. The teacher skilfully seized those which led to a purpose acceptable to the children, and they made plans that resulted in learning experiences.

To repeat, learning experiences are best initiated by seizing upon purposes which all pupils have, or by setting the stage so that desirable purposes emerge.

The elements in purpose. Purposes, as has been said, may be suggested by any aspect of the environment: teacher, physical facilities, social or intellectual relationships, or what not. The purpose can come only from the learner, however. In order to learn he must set up or wholly accept a purpose, plan for its accomplishment, and later decide whether or not his efforts to satisfy the purpose have been successful. This is very different from the all-too-common school situation wherein the teacher sets (assigns) the purpose and demands that the pupil fulfil it. Not only may the purpose be meaningless to the student but, what is much worse, in some cases he can see no relationship between the purpose and the activities demanded for its fulfilment. Finally, the pupil often cannot judge whether he has succeeded or not until he receives the arbitrary decision of the one who set the task and now sits in judgment on the results. *The pupil is thus robbed of nearly all the important aspects of a learning situation.*

The setting and achievement of educative purposes would seem to demand the following:

1. A careful analysis of the situation in which the purpose is to be fulfilled.

a.	b.	c.
Observation of the persons and materials with which interaction will take place.	Recall of any previous experiences which might bear on the present one.	Judgment as to the possible consequences of any contemplated action within the given situation.

2. A plan of action through which the purpose is to be achieved. (This is tentative and provisional. Planning continues as the experience develops.)
3. A series of evaluations constantly under way.

a.	b.
To determine, as the plan develops, whether the activities and materials are well chosen.	To determine to what extent the purpose has been successfully achieved

Observation is necessary because putting a purpose into effect necessitates interaction with persons and things in the environment. It is only

common sense to take stock of the assets and liabilities within the situation before embarking upon an activity. Search of one's own store of knowledge is again only common sense. Clues and other aids will arise through recall of earlier experiences, direct or vicarious. Many errors and false starts can thus be avoided. Judgment of consequences is equally a matter of ordinary intelligence.

Given the foregoing, one may then plan intelligently what to do to achieve the purpose, thus dissipating the tension out of which the purpose arose. Self-evaluation of one's own purposes and procedures is an inescapable part of setting and achieving purposes. Otherwise the individual will not learn how to adjust purpose to material and personal strengths or weaknesses. The ability to judge one's undertakings is an important ability for life.

In school situations these factors are matters of conscious concern (see Chapters 10 and 11) to teachers who wish to guide pupils into desirable learning situations.

Pupil purpose and social purpose must be balanced. Pupil purpose is clearly the prime mover to learning experiences. As indicated earlier in this chapter, however, the learning outcomes of pupil experience must be considered along with pupil purpose. In planning the actual conduct of everyday units and lessons, a balance must be maintained between the vivid, compelling, and immediate purposes of learners and the less vivid, less compelling, more remote purposes of our democratic social order. The teacher has been placed in the educative process to guide pupils' purposeful learning so that social purposes are also realized. The mechanics and details of organizing pupil and social purposes together are elaborated in Chapter 10 on the organization of units. This brief note is injected here merely to repeat the caution against interpreting pupil purpose as the *sole* organizing principle.

Motivation: A general statement. One question asked by all teachers in training is: How do you motivate pupils to study, to work, to learn? Experienced teachers constantly ask: How can you get lazy or indifferent or defiant pupils to study and learn? Motivation is a real problem to all who deal with guiding children and youth, and to all who presume to leadership among adults. The basic, general answer should be apparent from the preceding pages.

There is available a very large amount of material based upon critically analyzed research and upon experiments with animals, with children, and with adults. Before a summary of the principles of motivation, one general statement is important: there is no known general formula, no infallible set of devices, which will motivate all pupils at any and all times. Many earnest but naive teachers seem to be seeking a technique, a trick, a stunt which will motivate. Proper motivation will be an application of good general principles to the individual or group under guidance. Motivation demands that the teacher study and know

her individual pupils and the group as such.² Effective motivation is geared to the interests, the activities, the maturities of the learners in question. Ease of motivation with good teachers is directly related to knowledge of the learners' characteristics, and to ingenuity in making connections between them and desired learning activity.

Early discussions of general principles of motivation. Many texts on teaching and on educational psychology still retain suggestions on motivation left over from earlier views based on incomplete biological and psychological knowledge. As biological information increased, there was much emphasis upon human motivation in terms of primary organic needs or drives: self-preservation, sex, food-getting, avoidance of pain. That these are primary sources of motive cannot be denied, but routine ways of meeting these stimuli, with the exception of sex, are achieved early. These physiological and biological urges are only indirectly connected with motivation to specific behaviors in school and in later life.

A second organization of this type was to attach motive to "instinctive" tendencies or interests. Much emphasis was placed upon the instinctive interest in manipulating, in collecting, in play, in adventure and romance, in puzzles and problems, in rhythm, etc. We now know that most of what is commonly called instinctive is learned. Few true instincts have been established by research. Again the relation of such primitive reactions as there are to specific motivation of a child's school work is remote.

A later analysis of sources of motive. A much more fruitful conception is in the socio-psychological statement of the fundamental needs or desires of social beings. These are variously stated as (a) desire for security, (b) desire for recognition, (c) desire for response, and (d) desire for new experience. Research in sociology, psychology, and particularly in psychiatry is establishing the validity of these items as powerful factors in motivating human behavior.

Let us consider these important urges of the individual in relation to what we learned in an earlier chapter about the relation of action to tension and its relief. This volume has stressed that individuals are motivated by goals and purposes which when achieved restore the natural equilibrium of the individual. What disturbs equilibrium? Any of various items can disturb it—among them, threats to security, denials of recognition or response, curtailment of experience. We can now come closer to grips with the everyday problems of motivation. Specific, immediate motivations are more precise, and more directly personal purposes which serve some aspect of the more remote and general needs, desires, and drives of the organism. Motivation then becomes, as has been said, the subtle task of seizing upon natural purposes already existing within the on-going activities of learners, or of setting the stage, manipu-

² Chapter 20 summarizes techniques for studying individuals.

lating the environment, so that purposes meaningful to the learners emerge and are seized upon.

The more remote drives of any type aid us in determining just what specific motivations will engage the interest of the learner. Thus is explained why many school subjects and assignments do not motivate. They contain no threat to the security and equilibrium of the learner. He does not care, hence does not work. Subjects and assignments which are useful and meaningful or are made so by skilful teaching will beget action. The cases of learning situations recounted in Chapter 1 illustrate this specifically and were analyzed to show this a few pages back. Many other incidental examples throughout this volume illustrate this principle.

The two foregoing paragraphs simply reiterate the fundamental principle of learner purpose in a new relationship: immediate motivation. The following chapter will summarize the important technological research background on which this principle rests. Meanwhile, we may turn to the even more specific problems of classroom motivation.

Intrinsic and extrinsic motivation. Intrinsic motivation is that which is inherent in the learning situation. It is found in the needs, interests, attitudes, and purposes of the learner. It is best expressed in goals or purposes possessed by or accepted by the learner.

Extrinsic motivation resides in some factor outside the learning situation. The commonest forms are marks, credits, diplomas or degrees, prizes, medals, membership in honor societies. Social motives of rivalry and competition are used. The teacher's personality, desire for her approval, and liking for the teacher are also found operating as motives. Negative forms are scolding, sarcasm, ridicule, and punishment.

Extrinsic motivation necessary as schools are now constituted. A competent teacher, head of a department in a well-known high school, recently said to the writer that in some classes within her department it is absolutely necessary for the teachers to stand with grade book in hand and mark each pupil as he recites. Inattention or disorder must also be openly recorded in the book; otherwise, the pupils simply will not work and learn. Now it is difficult to think of a practice more fundamentally inimical to education than this; but let us examine the situation further. These high-school teachers have on their hands groups of pupils who have had years of conditioning in school systems operating on false bases of motivation. All of the misconceptions of learning presented in the preceding chapters have gotten in their fell work! Furthermore, many of these pupils have been forced by school regulations or by parents into courses for which they are utterly unfitted. The pupils have no aptitude for nor interest in the subjects. They can see no possible sense in studying them. And so we may say, with no betrayal of sound educational practice, that the department head quoted above is correct. It is necessary in given situations to club the students into learn-

ing. But no one should permit thinking to stop right here. This reprehensible situation is not natural. The reason students have to be policed with a grade book and bullied into learning is because (a) previous schooling has reduced them to that status in relation to learning, and (b) required subjects are forced upon learners who have no interest, aptitude, or use for those subjects. (Sometimes the forcing is in advance of maturity and not a fundamental violation of capacity.) Any fair-minded student of teaching knows that many teachers in given situations cannot proceed with sound practices because the situation prevents it. But teachers so caught should not stop with condoning the vicious practices forced upon them. Teachers must work unceasingly for the reform of education which will eliminate the evils. As stated in the previous chapter, the problem is administrative; but teacher pressure on it must be constant. In modern school systems with modern curricula and teaching methods in operation from the kindergarten, the situation described above simply does not arise.

The general effects of extrinsic motivations. Scores of experimental investigations of the effects of various extrinsic motivations show that various results are obtained. The number of studies is so large and covers so many variations of the common devices that a sampling will not be given here. Instead, reference is made to four sources³ in which extensive classified bibliographies are available. A summary of general findings will be given here.

1. Marks, rewards, punishments are effective as follows:

- a. The more closely the mark, reward, or punishment used as motive is a natural outcome of the learning process, the better effect it has. Learning is stimulated and undesirable concomitants are at a minimum.
- b. The more clearly the pupil sees that the mark, reward, or punishment is an inherent aspect of the learning situation, and not artificial and imposed, the better the learning results.
- c. Marks, rewards, and punishments not functionally related to the learning situation will beget learning but it is learning soon lost and accompanied by very detrimental concomitant learnings.

It is just here that the untrained, practical teacher makes her error. She sees that marks and punishments "get results." She does not see that the results are ephemeral and useless eventually. Worse, she does not see the results which do not come out in the open at the time.

³ Robert W. Frederick, Clarence E. Ragsdale, and Rachel Salisbury, *Directing Learning* (New York, D. Appleton-Century Co., 1938), Chap. 4. Excellent bibliography, pages 83-85.

Raymond H. Wheeler, and Francis T. Perkins, *Principles of Mental Development* (Thomas Y. Crowell Co., 1932). See footnotes on pages 306-314, 408-426.

National Society for the Study of Education, *Forty-first Yearbook*, Part 2, chap. 8, "The Psychology of Learning." The body of this chapter is not very valuable to the average student. The bibliography, pages 326-331, is unusually valuable.

Review of Educational Research. See various quarterly issues of this publication of the American Educational Research Association.

- d. Rewards are better than punishments, The latter operate as in (c) above.
- e. The best types of rewards are those inherent in the learning situation. (This is really an extension of the meaning of (a) above and will be discussed again below.)
2. Social motives of competition and rivalry are effective as follows:
 - a. Routine skills and factual information are readily acquired under these motives without immediate detrimental results
 - b. Certain conversational skills and more general types of thinking may be encouraged.
 - c. Creative work—imaginative work generally—is not affected very favorably.

Competition and rivalry have been used for centuries as motives in school. Effort unquestionably results. Some learnings such as skills and informations for individual use seem to be acquired with few or no detrimental concomitants. Competition with one's own record seems to be desirable. In recent years, however, two very grave questions have risen. Is individual mental hygiene promoted by emphasis upon rivalry and competition? Is social welfare promoted by these motives?

Many persons are convinced that competition is the rule of life: the survival of the fittest. This may have been true under simpler biological conditions in the animal world and under a condition of scarcity of economic goods. A cooperative world is just as natural and feasible under human ideals, civilized conceptions of biological factors, and under an economy of abundance. Competition is no more inherent and inevitable than cooperation. It is significant that in the business world with its ancient slogan "competition is the life of trade," the chief aim of powerful business leaders is to eliminate competition and achieve monopoly.

Psychologists and psychiatrists are deriving increasingly important bodies of data showing the definitely detrimental effects of competition. Genuine unhappiness, frustration, cheating, and worse seem inevitable. Sociologists and political scientists, and some economists, are increasingly of the opinion that many social problems in the community and in international relations are seriously aggravated by the competitive point of view. Coöperative and common group effort are as necessary in the world as competition, particularly if we are to have reasonable peace and stability. Both serve useful purposes, each in its place. Again we have a vital relationship between classroom teaching and the larger affairs of public policy.

3. The newer social motives of coöperation, recognition by one's fellows, common participation in planning, deciding, etc., seem to have very beneficial effects upon immediate and later learning. Commendation and praise for work well done are excellent motives. Indiscriminate or undeserved praise has a detrimental effect. Only a few studies on this subject are available, but more are under way.
4. Liking for the teacher seems to be a safe motive with little children. On

the upper levels liking must be combined with respect. The teacher's personality, however, should be used sparingly as a motive, since it can invite detrimental concomitants.

5. Sarcasm and ridicule secure only the most undesirable and detrimental learning outcomes. Continued use of sarcasm can result only from stupidity on the part of the teacher or as an outlet for a frustrated personality

Intrinsic motivation the most effective. It was stated just above that rewards inherent in the learning situation are the most effective motives. The moment the reward is wholly inherent in the learning situation, we have stepped over the line from extrinsic to intrinsic motivation.

A very desirable intrinsic motive is knowledge of one's own progress. As we shall see in the next chapter, the pupil's increasing insight into the problem to be solved, into the skill to be mastered, has a marked and favorable effect.

The most desirable intrinsic motives are purposes growing out of needs, interests, and activities or purposes accepted by the pupil. The desire to achieve certain skills and abilities useful in solving current life problems of the learner; to acquire information and understandings; to develop attitudes and appreciations making for successful, enjoyable life; to secure recognition of special abilities by one's fellows; to secure acceptance by others of one's willingness to cooperate; to secure acceptance of one's contributions—all these are real and sound motivations. The student's growing ability to understand his fellows, to contribute to discussion, to participate in discussion, increasingly to recognize merit in art and music, and literally thousands of other similar learning outcomes are motives recognized by pupils who are living in functional learning situations. These pupils do not need extrinsic rewards. Here the learning and the reward are the same. As Emerson said: "The reward of a thing well done is to have done it." Skeptics may say that pupils will not work for these rewards. On the contrary, no rewards are more effective, provided that the skilful teacher has developed with the pupils a learning situation in which the learning outcomes clearly and adequately contribute to the solution of problems real to the learner.

Maintenance of interest an important item. Initial impetus is given to units or to assignments of respectable size by purpose originated or accepted by the pupil. Everyone knows, however, that interest flags, enthusiasm fluctuates, periods of effort alternate with periods of indifference. A boy's purpose to become an engineer will motivate him to persist in high school and to persist through a series of mathematics courses. This will not motivate him, however, for all individual lessons, nor for all parts of these courses. Teachers know that it is necessary to keep remotivating, to renew interest from time to time. The traditional

school too often did this by threats, punishments, and sarcasm at worst; by marks, rewards, and honors at best. These must sometimes be used with the exception of the negative items; but it is better to seek positive, intrinsic, subsidiary motives.

One of the best techniques for retention or renewal of interest is the use of a variety of learning activities. The great variety of learning activities available was mentioned in Chapter 2 and will be elaborated in Chapter 10. Wide variety of learning activities is in itself interesting since it means that different things are going on. Receiving varied contributions to discussion or to the progress of the unit is always interesting to the group. Furthermore, this technique permits wider and wider participation by larger numbers of pupils. More different types of aptitude can be used. Thus more are kept interested and working than when but two or three activities are used and used by all alike.

All methods of adapting to individual differences among pupils constitute a second general source of subsidiary motivation.

The small successes won through the various adaptations to individual difference are still a third source of continued interest.

Variety of devices used by all, or resulting from adaptation to individual differences, is particularly important in learning situations demanding much practice or drill. This will be treated in detail in Chapter 16. All good teachers of languages, of grammar, of mathematics and similar subjects collect numerous devices for stimulating interest while conducting practice exercises. This is likewise true in the unified programs where subject fields have been minimized. Some extremists stand out against the use of subsidiary devices, but as schools are constituted these devices are unquestionably necessary.

Close adjustment of the difficulty of learning situations to the maturity levels of the pupils is a fourth method of retaining interest. (See the paragraphs on *pacing* in the following chapter.)

A fifth and most important source of continued interest lies in the sympathetic guidance and assistance given learners by the teacher. The sincere enthusiasm of the teacher for the work in hand, the honest commendation given pupil effort, and the cheerful willingness to be of service are unfailing factors in maintaining pupil interest and effort.

Discussions of specific classroom techniques of motivation available. The foregoing summary of general principles of motivation must of necessity be supplemented, particularly for beginning students, through reading a treatment of details. One of the following references⁴ should be read at this point before proceeding to the exercises.

⁴ Frank A. Butler, *The Improvement of Teaching in the Secondary Schools* (Chicago, University of Chicago Press, 1939), Chap. 7. Compact, readable statement. Brief but valuable.

Frederick, Ragsdale, and Salisbury, *op. cit.* Chapter 4 is a good general summary. Bibliography is extensive and excellent, covering practically all items.

A direct challenge to the teacher. The clear implications are that the requirements for teacher training should be progressively and seriously stiffened. Good teachers should be employed and charged with the responsibility for securing functioning learning outcomes. The following quotation develops some of the more specific teaching implications admirably: ⁵

Instead of requiring the pupils to take a course such as English or mathematics it would seem much more reasonable to employ good teachers and to put the requirement upon the teacher. Suppose, for example, that an English teacher were employed and informed that every student in the school or at least a very large percentage of the students was expected to show definite improvement in English during the course of a school year, but that no pupil would be required to register in an organized English course. Under these conditions the teacher would be very much concerned with discovering and using those purposeful activities of high-school students that require good usage of English for their attainment. If a good teacher were expected to follow such a program and if good usage of English is important, one should expect good results, and at the same time many of the undesirable features of required courses in English would be avoided. Such a program would inevitably lead to rather drastic revision of the course of study in all of the required subjects. It would quickly become apparent that some things now included in courses have no real function in promoting satisfactory living while other things are very important. If a school should adopt a plan in which requirements, grades, honor societies, and the like, were either dispensed with entirely or minimized, it would become necessary for teachers and administrators to be much more concerned about the real values of school subjects. It would probably be impossible to induce students to learn some of the things now included in a course of study, and rather drastic revision of the entire curriculum would take place. Such revision would, however, be in the direction of eliminating really useless material and adding material that has functional value.

Learning without purpose: Learning to do difficult, disagreeable, distasteful tasks in life. A fantasy of the human mind, the persistence of which is equalled only by its absurdity, holds that children must be forced to perform difficult, disagreeable tasks whether they like it or not as preparation for similar situations in real life. This belief is contrary to simple logic and is flatly contradicted by large amounts of factual data in various fields. Nevertheless, few fallacies in the fields of child rearing and teaching are as persistent and recurrent as this.

The following statement and question were made in a teachers' discussion group:

J. Murray Lee, and Dorris M. Lee, *The Child and His Curriculum* (New York, D. Appleton-Century Co., 1940), Chap. 4. Good, concrete material.

Raleigh Schorling, *Student Teaching* (New York, McGraw-Hill Book Co., 1940). Chapter 6 contains many excellent details.

Daniel Starch, Hazel M. Stanton, and Wilhelmine Koerth, *Psychology in Education* (New York, D. Appleton-Century Co., 1941). Chapter 6 contains a wealth of specific discussion. Material is somewhat unorganized and uncritical, but careful students will find much that is very helpful.

J. G. Umstatt, *Secondary School Teaching* (Boston, Ginn and Co., 1937). Chapter 5 covers both primary and secondary drives plus good illustrations.

⁵ Frederick, Ragsdale, and Salisbury, *op. cit.*, p. 65.

It is necessary in life to do, from time to time, disagreeable and distasteful tasks. Furthermore, the individual has to do them whether he likes it or not. As a preparation for life, pupils in school should be made to do many things which are difficult, distasteful, and unpleasant. If the pupils do not like it, they should be made to do these things anyway, because only thus can they be prepared for the doing of what must be done when earning one's living and meeting the harsh realities of life. The modern school which allows the pupil to do what he pleases does not prepare for life. Is this not true?

Other statements often heard are:

I make my pupils learn what is good for them whether they like it or not.
Pupils in school better make up their minds to learn—and like it.
I will not tolerate any nonsense. If you don't like doing these things, all the better. It will prepare you for life.
Out in the world individuals aren't asked what they will do. They are told. They take orders and like it or they get fired.

Widely accepted as these beliefs are, they are silly. Unfortunately these beliefs are often used by lazy and indifferent teachers to cover up their own inability to teach without coercion. Even worse, the beliefs are used by some frustrated and insecure individuals as an excuse for the bullying and domineering which salves and relieves their own feeling of inferiority.

However, they are often held in all honesty and sincerity because of ignorance of the nature of the individual, of the nature of learning, of the nature of purpose. This can be remedied.

Certain misconceptions support the error. The ancient misconception that individuals are by nature weak, perverse, or actually evil, persists. This is one of the less desirable items in our Puritan tradition. Harsh discipline and coercion are necessary to transform bad children into good children with sufficient moral fiber to do difficult and distasteful things. The facts are that there is ample evidence from child study, from analyses of juvenile delinquency, from analyses of elimination of pupils from school to show that most of the bad conduct, delinquency, poor learning, and refusal to stay in school resulted not from the nature of childhood but directly from the coercive education. The huge body of data available can be found by any one who knows how to use a library.

The nature of learning and of purpose have already been presented in this and the preceding chapter. Utilizing pupil purpose in no sense means "letting pupils do what they please." It does not mean that pupils will miss or avoid socially necessary learnings; nor that they will escape doing hard and difficult things. Far from it. Utilizing pupil purpose means making things sensible and meaningful to the learner. The modern school has no lack of hard, difficult, even distasteful things to be done, but it makes them sensible to the learner by showing that they are necessary for the accomplishment of a desirable goal. More will be said of this a few paragraphs further on.

A smug cultural irrelevance also affects this matter. It is assumed that

certain materials and certain forced learnings will somehow automatically carry over into life. This is contradicted by all the known facts on transfer.

Evidence from out-of-school situations. Let us examine the matter in broader implications than those of the classroom "Out in the world a person must do difficult unpleasant tasks whether he likes it or not. He will not be asked if he wants to." This statement is flatly contradicted by both logic and evidence. "Out-in-the-world" purpose is still the drive to action. No one does anything without a purpose unless he is a prisoner or a slave. Plato long ago defined a slave as one who accepts his purposes from another. No one washes dishes, cleans sewers, collects garbage, tends a monotonous machine process, persists in difficult research fifteen hours a day for the sake of doing difficult, distasteful things. Most certainly no one does these things because trained to do distasteful things in school. These things are all done in the course of accomplishing a purpose—in most cases earning a living. In many cases the purpose is to create, to discover, or to invent. These lead to earning a living, to be sure, but this is subordinate. Many creative artists and advanced scholars persist through most arduous difficulties for the sake of intellectual purposes.

When individuals secure positions "out in the world," they either choose or knowingly accept the purposes connected with the work for which they are paid. Individuals who do not act under chosen or accepted purposes lead mediocre, unhappy, discontented, rebellious lives. They become neurotic, anti-social; and in some cases, they turn out to be social rebels. It is flatly untrue that persons "out in the world" do what they do not want to do *and live successful lives*.

1. *The evidence gathered from business management is enlightening.* Those who run things "out in the world" have let down badly those who assert that employment forces individuals to do unpleasant things whether they like it or not; that purposes of the employees are never consulted. Industry is actually spending *millions of dollars* to avoid this very error! Highly paid, technically trained personnel experts make every effort to place employees in work for which they are fitted, which they wish to do. Exactly the same principle is followed as advocated by modern education—make effort meaningful, sensible, through making it purposeful to the worker.

An enlightening volume which should be read by all teachers afflicted with the "out-in-the-world" complex is *What People Want from Business*.⁶ Hundreds of employees were asked to list factors important to

⁶ Paul Cherington, *People's Wants and How to Satisfy Them* (New York, Harper & Bros., 1935).

Clinton S. Golden, and Harold J. Ruttenberg, *The Dynamics of Industrial Democracy* (New York, Harper & Bros., 1942).

J. A. Hopwood, *Salaries, Wages and Labor Relations* (New York, The Ronald Press Co., 1937).

them. Higher pay ranks well down on the list. The first eleven and the majority of the twenty-eight items listed deal with making the work purposeful and intelligent.

One of the most remarkable studies of all time bearing upon this problem was carried on for twelve years by the Western Electric Company, and finally published under the title, *Management and the Worker*.⁷ The research started out to discover those factors which would enable employees to increase production. Attention was given to physical factors of light and eyestrain, rest pauses, change of work, relation of wages to output, and many others. But puzzling enough, a factor beyond these kept upsetting conclusions. Persistent research over years proved conclusively that the vital factor in improvement was a human and social one, namely, morale. The factors which enhanced morale and hence employee efficiency were just what modern psychology and education have contended. Morale improves as employees may participate in planning their own work and conditions; when direction by foremen and others is friendly and democratic rather than autocratic; when suggestions from employees are accepted. In brief, efficiency in employment is directly affected by the degree to which the worker finds purpose in it. "Out in the world" big business is abandoning the "do-it-and-like-it" policy for one of purpose. As distinguished an industrialist as Edward R. Stettinius, Jr., Chairman of the Finance Committee (1938) of the United States Steel Corporation, has written a pamphlet on the selection, placement, and motivation of executives. It is part of a systematic consideration on the part of a great corporation to this whole matter of motivation and morale. The Western Electric study is analyzed in an interpretive article with educational implications by Goodwin Watson in *Progressive Education* for January, 1942.⁸ This is excellent reading for teachers.

A popular article well worth reading, which discusses the efforts of

J. David Houser, *What People Want from Business* (New York, McGraw-Hill Book Co., 1938), An important and valuable study.

—, *What the Employer Thinks* (Cambridge, Mass., Harvard University Press, 1927)

Elton Mayo, *Human Problems of an Industrial Civilization* (New York, The Macmillan Co., 1933).

T. E. Murphy, "They Tell the Boss What's Wrong," *Reader's Digest*, Vol. 41 (July, 1942), pp. 102-103. Condensed from *Forbes Magazine*, May 15, 1942.

John Patric, and Frank J. Taylor, "How Kaiser Keeps 'em from Quitting," *Reader's Digest*, Vol. 42 (January, 1943), pp. 107-110. Condensed from *Nation's Business*, December, 1942.

⁷ F. J. Roethlisberger and others, *Management and the Worker* (Cambridge, Mass., Harvard University Press, 1939). An account of the monumental research conducted by the Western Electric Company, Hawthorne Works, Chicago, Ill. Began in 1927. An epoch-making study.

⁸ Goodwin Watson, "The Surprising Discovery of Morale," *Progressive Education*, Vol. XIX (January, 1942), pp. 33-41. An interpretive description of the Western Electric study with copious applications to education.

200 firms to test employees' temperaments and to fit them to proper positions, appears in *The Reader's Digest*⁹ for January, 1942. This article, "Fitting the Worker to the Job," concludes with the statement, "Anybody might be a troublemaker on the wrong job. Fit him to the right job and he is usually a good worker. It is no favor to a man to hire him for a job that doesn't fit him. Find out what he can do; then find the right niche for him."

2. *Evidence corroborating modern views appears in the "hard-boiled" management of fighting men.* Of all places where normal individuals would seem to have to accept difficult, distasteful tasks without recourse, the army would seem to be the best illustration. The contrary is true in so far as desperate necessity permits. The army has one of the best-trained staffs of personnel technicians in existence. Men are tested and analyzed as carefully as possible in order to fit them to the proper type of service.¹⁰ The "brass hat" type of officer holds all this in contempt—and in consequence has made some atrocious and costly blunders. Modern officers know the value of fitting soldiers to appropriate tasks. An excellent popular article appeared in *The Reader's Digest* for March, 1942, entitled "The New Army's Discipline." Descriptions of the army personnel work in sorting the men have appeared in newspapers and magazines in great numbers. Other related articles are available.¹¹

The remote purposes of the war were explained to drafted men by experts employed by the government. The more intelligent and educated an army is, the greater necessity that it be imbued with purposes meaningful to the individuals. Mercenary armies are notoriously unreliable; they have no genuine purpose for which to fight. History shows again and again that men with a purpose in which they believe fight to the death. Again and again soldiers who have lost faith in their purposes will quit even though they risk being fired upon by their own officers.

3. *The evidence from critical observation and from psychiatry is clear-cut and voluminous.* The evidence from ordinary everyday observation is so easily available and so little understood. Here is another instance of complete failure to analyze one's own experience critically.

Pierre van Paassen in his *Days of Our Years*¹² describes the authori-

⁹ Frank J. Taylor, "Fitting the Worker to the Job," *Reader's Digest*, Vol. 40 (January, 1942), pp. 12-16. Condensed from *Future*, January, 1942.

¹⁰ Walter V. Bingham, "How the Army Sorts Its Manpower," *Harpers Magazine*, September, 1942, pp. 432-440.

¹¹ Temple H. Fielding, "So You're an Officer," *Reader's Digest*, Vol. 40 (Jan., 1942), pp. 79-82. Condensed from *American Legion Magazine*, December, 1941.

Thomas H. Johnson, "The New Army's Discipline," *Reader's Digest*, Vol. 40 (March, 1942), pp. 108-111. Condensed from *American Legion Magazine*, March, 1942.

Dan Wharton, "The New MP," *Saturday Evening Post*, Vol. 215 (September 19, 1942), pp. 20 ff.

Other popular articles are available, as are technical discussions of army personnel work. See also excellent articles in the *Infantry Journal*.

¹² Pierre van Paassen, *Days of Our Years* (New York, Hillman-Curl, Inc., 1939).

tarian schools to which he went in Holland with harsh masters forcing children to learn. His descriptions of the insecure, neurotic children should be read. Dickens's novels abound in keen, insightful accounts of the evils of forced learning. His materials on this have been summarized in two volumes, *Dickens as a Social Reformer*¹³ and *Dickens as an Educator*.¹⁴ The harshness of Hitler's totalitarian armies to subject peoples obscures the fact that Hitler's technique with the German youth was to give them purpose, to make them important and to make them feel that they "belong," since they are carrying out the high purposes of their nation. Significantly and in point here, Hitler's policy of coercion of conquered peoples, no matter how ferocious, fails because it is contrary to fundamental natural laws.

Maslow and Mittleman¹⁵ show clearly that harsh, coercive education destroys self-reliance and self-esteem in pupils. The remarkable experiment on "social climates" by Lewin, Lippitt, and White¹⁶ shows clearly the disintegration of personality under "doing things whether you like it or not" in contrast to the extensive, integrative learning taking place under purpose. Frank and Ludvigh¹⁷ have even shown that the presence of very unpleasant and disagreeable odors materially reduces the efficiency of learning. Frank has a number of interesting studies on the relation between level of aspiration, difficulty of task, and achievement. Dollard¹⁸ shows that when aggressiveness is built up without normal outlets in purposeful activity, the inevitable results are frustration and revolt. Wexburg¹⁹ in his book, *Your Nervous Child*, states that when we educate for obedience and as employees we produce persons whose security disappears when they lose a position. Educated to obey, they do not know what to do next. They become the victims of demagogues and rabble rousers. This type of evidence from psychologists and

¹³ W. Walter Crotch, *Charles Dickens: Social Reformer* (London, Chapman & Hall, 1913).

¹⁴ James L. Hughes, *Dickens as an Educator* (New York, D. Appleton-Century Co., 1902).

¹⁵ A. H. Maslow and B. Mittleman, *Principles of Abnormal Psychology* (New York, Harper & Brothers, 1941).

¹⁶ Kurt Lewin; Ronald Lippitt, and R. K. White, "Patterns of Aggressive Behavior in Experimentally Created Social Climates," *Journal of Social Psychology*, Vol. 10 (May, 1939), pp. 271-299.

¹⁷ J. D. Frank and E. J. Ludvigh, "The Retroactive Effect of Pleasant and Unpleasant Odors on Learning," *American Journal of Psychology*, Vol. 43 (January, 1931), pp. 102-108. See psychological abstracts for other references to Frank.

¹⁸ John Dollard and others, *Frustration and Aggression* (New Haven, Yale University Press, and London, Oxford University Press, 1940).

¹⁹ N. E. Miller and others, "The Frustration Aggression Hypothesis," *The Psychological Review*, Vol. 48, 1941, pp. 337-342.

Gardner Murphy, Lois B. Murphy, and Theodore M. Newcomb, *Experimental Social Psychology* (New York, Harper & Brothers, revised, 1937). This is an exceptionally good reference.

²⁰ Erwin Wexburg, *Your Nervous Child*. (New York, A. & C. Boni, 1927).

psychiatrists and social workers can be duplicated in great volume.²⁰ Persons who persist in forcing difficult distasteful tasks upon children without purpose are deliberately defying an enormous body of data; are deliberately risking unhappy, frustrated, neurotic, rebellious children and adults.

4. *Evidence from more limited school situations.* Evidence showing the evil effects of forced difficulties upon learning and school attitudes is so enormous that any sampling of illustrations or references is a mere drop in the bucket.

A boy in a high school known to the writer was caught engraving the head of Lincoln, using a pin and a piece of chalk. The teacher gave him an unmerciful and sarcastic tongue lashing, advising him to put his attention on the school assignments which would be "good for him." The boy was, however, completely bored with regular school work. Another teacher, hearing of the incident, encouraged the boy to take courses in art. It was not long until the boy was attracting attention in that work—and in his other classes since he saw the necessity of certain other learnings if he was to succeed as an artist. Previously, he had been on the verge of a revolt and demanding to leave school. He finally did leave the school—a beautiful bronze plaque which stands in the hall. He is now a distinguished artist. He could have been forced out of school by enforced education. This is only a story. It can be corroborated by massed data.

The high-school authorities were slow to see the implications of the absorption of students in social and extra-curricular activities. These were purposeful. Their educative value is now realized and they are being increasingly regarded as curricular. The high school has also been threatened by educational activities organized around the CCC., the NYA., and the WPA. These educational programs were, until curtailed by the war, inviting increasing numbers of students. They served life purposes which the formal school did not. As stated elsewhere, the traditional high school will eventually have to make its curriculum purposeful or be superseded by an institution which will. Much that is now given in high school is only disagreeable and miseducative because forced upon the pupil. Connections with life purposes are not made. Recall in this regard the class studying the Reconstruction Period. By itself, this material to a high-school class must of necessity be uninteresting, its mastery difficult and distasteful. Connected with a life interest and purpose, it does not become easy but it becomes intelligible, hence interesting and learnable.

²⁰ Stansfeld Sargent, "Effects of Difficulty Level upon the Thinking Process," *Psychological Bulletin*, Vol. 37 (October, 1940), p. 568.

—, "Thinking Processes at Various Levels of Difficulty; a Quantitative and Qualitative Study of Individual Difficulties," *Archives of Psychology*, No. 249, 1940.

The educational implications of difficulty. If there were any real merit in learning through situations which are in and for themselves difficult, distasteful, and disagreeable, we should then turn off the heating plant on cold days. We should arbitrarily make children go without lunch on some school days. Corporal punishment should be used on those who learn slowly or not at all. This is, of course, *reductio ad absurdum*. More sensible summaries may be made.

Acting on purpose—which is exactly the same in school or “out in the world”—does not mean that one does only easy, pleasant things. It does not mean that the pupil may quit when “the going gets tough.” It does not mean that the pupil may avoid hard or difficult learning situations which are socially necessary. The direct opposite is true. Acting under purpose will motivate children and adults alike to persist through any number of difficult, distasteful situations for the sake of achieving the purpose. The chosen purpose makes the doing of distasteful things sensible. Furthermore, the difficult and the interesting are not at all antithetical. Difficulties met in the pursuit of purpose may be intensely interesting.

The only way any human being learns persistence is by following chosen or accepted purposes. It is actually true that, fundamentally, no person can force another free person to do anything. Slaves and prisoners do act under compulsion. The free persons, notably children in school, go through the motions but they do not do what it is thought they do. There is definite precise evidence on this. Feelings and attitudes affect the total organism. Pupils do not accept, seek, recall, or repeat what upsets their digestions, their emotions, their security and poise. Pupils do not learn what humiliates them. There is no emotional or intellectual allegiance to things learned under unhappiness.

Forcing children or adults through difficult, distasteful tasks does not beget persistence or discipline. It ensures the direct opposite: avoidance of responsibility, sidestepping, “passing the buck” to others, antagonism, and finally either a broken spirit or rebellion. The learner takes from and profits from a learning experience to the extent that it serves a purpose of his. He accepts from unpleasant and difficult situations anything which furthers his progress or serves his ends. He willingly tackles and persists through unpleasant situations if he can see through them to a desired end. He does not persist through distasteful learnings because he has to, or because he has been trained to, but because they serve a purpose which is sensible to him. Pupils learn what they accept. They do not learn what they reject.

Long before scientific evidence was available, competent thinkers recognized the fallacy in and futility of learning under duress. Scores of statements are available in all kinds of writing, prose and poetry, fiction and non-fiction, biographies, essays, and polemics. One may be quoted

because of its source and age. Freely translating from St. Augustine's *Confessions*:²¹

Time was also (as an infant) I knew no Latin; but this I learned without fear of suffering, by mere observation, amid the caresses of my nursery and jests of my friends, smiling and sportively encouraging me. This I learned without pressure of punishment to urge me on, for my heart urged me to give birth to its conceptions, which I could only do by learning words not of those who taught, but of those who talked with me, in whose ears also I gave birth to the thoughts, whatever I conceived. Hereby it clearly appears that a *free curiosity hath more force in our learning these things than a frightful enforcement.* [Italics mine.]

He then contrasts his experiences in learning Latin with learning Greek.

But why then did I hate the Greek literature that chants of such things (high adventures in war and love and mystery)? . . . For Homer himself was skillful in contriving such fictions, and is most delightfully wanton, but yet very harsh to me being a schoolboy. I believe that Virgil is no less to Grecian children when they are compelled to learn him, as I was to learn Homer; for to say truth, the difficulty of learning a strange language, did sprinkle as it were with gall all the pleasures of those fabulous narrations. *For I understood not a word of it, yet they vehemently pressed me with most cruel threatenings and punishments, to make me understand it.* [Italics mine.]

DISCUSSION QUESTIONS

1. Adults will struggle with cross-word puzzles, mazes, and similar "brain teasers." They become interested, throw themselves into it, and work for hours. Obviously, there is no important result involved, as young people often say, "There is no point in this." Why do they persist in such activities?

Men go exploring to the South Pole or Central Africa in the face of suffering, hardship, and serious danger. In some explorations there is little commercial or other material advantage to be gained. Why do men do these things?

(The foregoing questions are partly rhetorical. Detailed answers are not desired. A one-sentence common-sense answer is sufficient for the moment.)

2. It seems then that people will do things which are hard, unpleasant, dangerous, things which are not what might be expected, things seemingly with "no point." Students often say that school work has "no point," that it is not worth doing; that it is too hard for the little benefit derived. Is it possible that students could be induced to put as much effort into school work as they and other persons willingly do put into other things which viewed casually seem also to have "no point"?

3. Should there be, then, no work done by a pupil unless he is interested and willing?

4. What is the relation of interest, of effort, of difficulty, of unpleasantness, to one another and to learning? Prepare a popular common-sense statement.

5. Illustrate with simple common-sense cases from your own experience or as observed, the equilibrium-tension-restoration sequence. (Out-of-school reference here.)

6. Illustrate the place and operation of the three points in purposing on

²¹ St. Augustine's *Confessions*. Any translation or edition, Book I, Chapter 14.

page 104 as operative in everyday affairs, simple or complex. Give an account in some detail from your own experience.

7. What else besides purpose makes men carry on activities?

8. Why should pupils participate in setting up purposes? in planning for their execution? What is the part of the teacher here?

9. Illustrate with recalled or observed cases the errors of the traditional school here.

10. What normal purposes of college students do many instructors usually neglect? usually utilize?

11. What is meant by the expression, common in educational literature, "felt need"? What is the value of Bode's criticism of the common use of the term?

12. The text stated that a student's purpose to succeed in a vocation would ordinarily motivate him to persist in high school and in given sequences of courses but would not necessarily motivate daily lessons or isolated sequences within courses. A teacher was heard to tell his college physics class that if they could not learn the material now studied they would not be able to do the third-year work when reached. Is this good or poor technique? (Pay careful attention to the wording before answering.)

13. Pupils at certain levels are continually asking questions. They suggest many purposes. This may be an excellent indication of intelligence, desire to learn, or it may be merely a display of egotism, delight in gaining attention, being listened to.

a. How can the teacher tell under which type a given pupil might fall?

b. Give a number of specific illustrations from your observation.

14. Students in mechanical drawing are often asked to letter or decorate dance invitations, programs for parties, school posters. A requirement of the drawing department is that all plates must be neat and clean. This condition is more often missing than present in regular class-made plates but is almost never lacking in the invitations, programs, and posters.

A boy taking piano lessons made little progress and after four years dropped the work. Several years later in college he took up piano on his own volition. In a short time he had made more progress than in the four years earlier and far more than could be accounted for by any carryover.

Duplicate cases from your experience and observation showing the same situation and give analysis.

15. Observe and note the motivations used in a number of classrooms. Discuss analytically.

16. Watch for illustrations of the "difficult," "distasteful" forced-learning fallacy. They may be found in conversation with individuals or noted in observing teaching. If possible secure through tactful conversation the reasons given by the individuals in question for support of the fallacy. Try to discover the specific background (more often lack of background) of experience, supposed fact, etc., and, if present, the personal frustrations or emotional immaturities which lead the individual into the error.

17. Cite from experience or observation as adequately as can be determined the actual results of imposition of difficult distasteful things arbitrarily assigned.

18. Supplement from current periodicals, from observation, or other sources the evidence from the business world, or other out-of-school areas, cited in this chapter.

READINGS FOR SECTION I

BODE, Boyd H, *Progressive Education at the Crossroads* (New York, Newson and Company, 1938), Chap. 4.

- , *Conflicting Psychologies of Learning* (Boston, D. C. Heath and Company, 1929, Chaps. 11, 12, 13. Somewhat advanced treatment but very readable. (This volume has been rewritten and issued as the reference immediately following.)
- , *How We Learn* (Boston, D. C. Heath and Company, 1940), Chaps. 12-16 inclusive. A modern edition of the previous reference. Difficult reading but very important. Not for immature students.
- DEWEY, John, *Experience and Education* (New York, The Macmillan Company, 1938), Chaps. 1 and 6.
- KILPATRICK, William H., *Foundations of Method* (New York, The Macmillan Company, 1925), pp. 30-32, 348 ff, Chaps. 5, 6, 7, 13.
- HOPKINS, L. Thomas, *Interaction* (Boston, D. C. Heath and Company, 1941), pp. 161-163.
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- WYNNE, John P., *The Teacher and the Curriculum* (New York, Prentice-Hall, Inc., 1937), pp. 23-29 and Chap. 3.
- , *The Educative Experience* (Farmville, Va., The Herald Press, 1940), Chap. 4.

SECTION 2

EDUCATIVE EXPERIENCE IS CONTINUOUS AND INTERACTIVE

Experience is continuous. The learning experiences so far discussed in this volume were clearly connected with the past experience of the learner. They, as do all experiences, grew out of other experiences, past or passing. Any current experience uses meanings, insights, and skills learned in and carried over from past experiences. This is self-evident. It is also self-evident that all learning experiences are designed to affect and do affect experiences which follow. It is redundant to say that learning experiences are for the purpose of knowing more and doing better in future experiences.

In simple terms educative experiences are those through which the learner learns to do better the things he needs to do in order to become a competent member of his society. For instance, he will learn to read, to like to read, to choose better and better materials to read. Most important he will learn to evaluate what he reads, to discriminate critically, to determine the reliability of what he reads. Many of the older schools provided experiences which were not continuous and interactive with real life, resulting in poor reading habits, dislike for reading, and a gullible belief in anything printed.

Arithmetical skills and ability to judge when to use certain skills are developed by school experiences which are continuous with real life problems. Other school experiences may teach the children the multiplication tables but not how or when to multiply—paradoxical as that may sound! Future growth is curtailed before it starts! Skills may be taught in one school so that in future the learner can not only use them but is in some measure inventive in using and improving them.

Skills may be taught in another school so that the pupil is quite unable to adjust to new developments in the use of the skill. This is widespread in adult life. This brief list of illustrations could be extended indefinitely.

Speaking in general terms applicable to many school subjects or experiences, we find many typical school experiences expressly set up for the purpose of furthering learning, praised in one school, condemned in another. The key lies in the degree of continuity and interaction. Many of the typical procedures of the older school are discontinuous with the pupils' normal life activities and provide but meager limited interaction. Many of these were mentioned in Chapter 2: memorizing the text; "covering" the text; limiting of experience to reading, writing, listening, reciting; insistence on the acquisition of isolated facts or skills; providing interaction with but a limited, academic environment; imposition; working for marks, etc. Conversely, many procedures are appearing in both old and new schools which provide excellent continuity and lifelike interaction. These are natural activities growing out of normal life processes, not imposed, providing for many and varied learning processes, and demanding interaction with a wide and varied environment.

Experience is interactive. All experience in and out of school involves interaction with persons and things. It is a commonplace that we consult persons, refer to books, use materials, visit places, observe processes, participate. Learning is directly affected by the availability and accessibility of persons and materials, and by the use made of those which are accessible.

It is not so clear to the ordinary observer that we in turn affect the persons and things in the environment. That is, interaction should be *mutually contingent*. This means in simple terms that neither the individual nor the environment is the most important factor in an educative experience. This principle has already been exemplified in earlier paragraphs which indicated the necessity of balance between organized subject matter and the nature of the learner. This point will be developed further a few pages below in an analysis of balance between the two. Still another implication of this principle will emerge in the following chapter in the paragraphs on heredity and environment. At the moment we are concerned only with establishing the nature of the principle. Suffice it to say that the interactive relationship should be mutual to be educationally beneficial. The "individual cannot impose on his environment and his environment cannot impinge upon him."²²

This principle is discussed at some length by Dewey,²³ by Hopkins,²⁴

²² L. Thomas Hopkins, *Interaction* (Boston, D. C. Heath & Co., 1941), p. 208.

²³ John Dewey, *Experience and Education* (New York, The Macmillan Co., 1938), pp. 41-47.

²⁴ L. Thomas Hopkins, *op. cit.*, pp. 207-210.

and by Wynne,²⁵ particularly the last two. While all agree on the principle, there are minor differences in exposition and interpretation among these authors. The following paragraphs will again differ slightly from those of the other writers. The emphasis here is on making the basic point simple and clear for beginning students and teachers. Hopkins and Wynne both present a much more advanced statement with implications extremely valuable for instructors who are training teachers. Advanced students of method will also profit greatly from study of these excellent and more detailed presentations.

We do not merely *use* the environment, we *mutually interact* with it. We do not live *in* an environment, we live *with* it. We could not live without it. The individual is not *in* his environment as stones are *in* a wall, not as apples are *in* a box, not as pennies are *in* a pocket. He is *in* his environment as a plant is *in* the sunlight, and as sunlight is *in* the plant. The plant sits in the sunlight, to be sure, but the sunlight is just as surely in the plant. Furthermore the plant is more than just sitting passively in the sunlight. The sunlight is not in the plant in the form in which it played upon the plant. It has been made over into something useful to the growth of the plant. The plant absorbs carbon dioxide, decomposing it, assimilating the carbon in conjunction with the sunlight, and returning much of the oxygen to the environment. Interaction has taken place. Both plant and environment have been changed. This is what is meant by living *in* the environment. In traditional schools the subject matter does not bring much sunlight into the lives of the human plants! The modern school, which incidentally uses far more subject matter than the traditional, attempts to have subject matter and learner interact as do sunlight and plant. Something is taken by the learner and made over into controls of conduct. The subject matter is changed in that it assumes a different place and value in the mind of the learner.

The ordinary interpretation of environment is also misleading. In common discussion it usually means *everything* within immediate and not-too-distant range. This is the potential but not the actual environment. Another difficulty arises from the distinction sometimes made between a person's environment (immediate) and his background (remote). The *actual* environment includes those things, persons, and materials with which the individual interacts at a given time in pursuing current purposes. The actual environment may ignore many immediate items in plain sight because these do not affect the activity under way. The actual environment may include many persons and materials remote in space and time; it may include items in Thibet or Utopia. Dewey

²⁵ John P. Wynne, *The Educative Experience*. A pamphlet of 107 pages. Probably the most competent analysis now in print.

The writer gratefully acknowledges his indebtedness for guidance in preparing these paragraphs to the excellent discussions by Hopkins and Wynne. Correspondence and conversations with Wynne were also particularly helpful.

facetiously says that when a person is building castles in the air, he is interacting with objects constructed in fancy.²⁶ The actual environment includes accounts in books written long, long ago, or books about things even further back. Again it may be pointed out that, contrary to many superficial criticisms, the modern school utilizes far more subject matter than the traditional school, and uses it more effectively. The modern school utilizes any and all of the cultural heritage which serves any useful purpose. It does not, however, impose arbitrary segments of ancient material because of vague and shadowy claims of value.

Internal and external factors in interactive experience sometimes out of balance. The inner and subjective factor is constituted of the learner's needs, purposes, attitudes, interests, beliefs, habits, prejudices, aptitudes, disabilities, etc., etc. The outer and objective factor includes the physical setting with its objective facts and controls, the social order with its conventions and institutions, the economic system, the religious systems with creeds and commandments, the educational system itself in all its ramifications, plus many other institutions educative and miseducative.

Emphasis may be placed too heavily on the inner or subjective factors of need, purpose, attitudes. Continuity may then easily depend too much upon casual and accidental connections. The interaction may be so wide and so varied as to bewilder rather than educate. Here we have the error of the "ultra" progressives or moderns. The emphasis upon the "child-centered" school was eminently desirable when it emerged some years ago. It corrected the vicious overemphasis upon formal subject-centered, adult-organized schools. There was considerable over-correction among many superficial rank and file teachers. We are now well into a period of intelligent balance between the learner and the cultural heritage. It is significant that Rugg, who was co-author of *The Child Centered School*,²⁷ is also the author of several of the most influential texts on community influence upon schools, upon the background and heritage of our civilization.

The emphasis may be—and in the past all too clearly has been—too heavily on the external and objective factors. Continuity then depends upon adult aims and upon the internal logic of the subject matter. This continuity is not a continuity with the life of the learner. It is significant that in many cases the normal learning curve of young children slows or drops back as they enter school. They come from real life situations in which they have been learning many things by normal experience. They are now asked to forget this and enter upon a series of activities which are strange, and which, as far as the child can see, seem to have no use. There are scores of stories about children who fail in arithmetic

²⁶ John Dewey, *op. cit.*, p. 42.

²⁷ Harold Rugg, and Ann Shumaker (Yonkers-on-Hudson, N. Y., World Book Co., 1928). Incidentally this is still one of the most effective volumes to give as initial reading to traditional teachers who are entering upon study of modern methods.)

miserably in the lower grades but who are found making change and doing errands involving computation quite well in real life. The interaction in schools too heavily biased toward adult aims and subject matter is narrow, limited, and formal. It is usually confined to but a few environmental factors, books, references, maps, teachers. Here we have the error of the "ultra" conservative. It is found in many colleges and high schools, and particularly in schools specializing in "college preparatory" courses. The Dartmouth study referred to in the previous chapter shows that learning under this overemphasis is not useful learning. As also indicated in Chapter 3, learning from books and through logically organized subject matter is legitimate and necessary upon certain levels of pupil maturity.

Both factors are essential. The needs and purposes of the pupil, and the demands of the environment usually compiled into subject matter, are equally important items in the learning situation. The good teacher strives for balance. Teaching activities to this end are presented in Chapters 10 and 11. Meanwhile we may turn to an analysis of some of the broad general violations of the principles of continuity and interaction. Following that will be a summary of efforts being made to provide for proper continuity and interaction.

School experiences often violate the principles of continuity and interaction. Many everyday, accepted, even somewhat sacred practices in typical schools are in fact interferences with natural, continuous, interactive learning. Some items mentioned in the following paragraphs will shock many school workers. Recovery from shock should be followed by calm analysis.

The *course of study* made up of separate unrelated subjects is a case in point, particularly in elementary schools. The subjects are taught for the learnings supposed to reside within the material, and for use in later life. Little or no attempt is made to relate the learnings to the current on-going life of the learner. In fact little attempt is made to relate even the subject-matter learnings from subject to subject. Some of the subjects in the secondary school can hardly be related at all to the life of certain groups of pupils. Pupils regard these irrelevant materials as necessary evils required by the odd persons who manage the school. Continuity is obscure and in some cases must be non-existent. Interaction can only be restricted and narrowing. Even in the admittedly formal college preparatory sequence there has developed a considerable lack of continuity toward the limited goal of college entrance. The college preparatory sequence could profit enormously from the life interests which it callously and blindly ignores or actively represses. The typical course of study too often divides and fractionizes the dynamic world of children to their confusion and distrust. The attitudinal learnings accompanying many subjects, especially in the field of skills, are seriously inimical to education.

The *sequence* still found in many schools from ancient history to medieval or modern history, to English or American history illustrates perfectly a continuity which is no continuity at all for the learner. In fact even the subject matter continuity does not exist in schools where each segment is taught as a separate whole. Relationships, trends, and sequences are not brought out. Relation to the life of the learner is usually ignored. Chronological history begins at *its* beginning, not at the *pupil's* beginning. A comprehension of chronology in history is an end point, a learning achievement, not a scheme to be imposed upon immature learners. To deal with elements within any unity as if those elements were themselves wholes, units, and end-points is to destroy the very unity with which we are dealing.

The sequence within a single subject may also be a false one. Spelling, for instance, would seem to be internally continuous but it is not. The daily spelling lists are not as a rule continuous in any sense.

The sequence in the sciences and the failure to relate meanings from science to science is similar to that in history. Relation to life is also neglected. A class of city children faithfully learned five causes of forest fires as listed in the textbook. Years later some of them learned through direct experience that these were not the causes of forest fires.

In English the practice of mixing formal grammar and composition, appreciation of literature, and sometimes creative writing in the same course definitely prevents educative continuity. To insist on placing two or three of these elements not merely in the same course but in the same daily period is an absurdity of astounding magnitude.²⁸ The three kinds of learning involved are definitely entitled each to its own continuity, especially on upper levels where specialization is legitimate. In the lower grades functional grammar should appear in connection with other aspects of English. The utter failure of the formal approach indicated is seen in the prevalence of quack courses, "learn to speak correctly in fifteen minutes a day." The school did not do the job and the disillusioned adult turns to substitutes for functional study.

In many Latin classes individual students stumble through two lines of translation and sink back into their seats. After some minutes the teacher may arbitrarily jump to grammatical analysis, and still later to

²⁸ An excellent teacher with years of experience who read this book in manuscript suggested that this paragraph be eliminated since it was "fantastic"; no teacher would be guilty of such malpractice. Directed to visit half a dozen nearby high schools at random she was astounded to find the "malpractice" to be practically universal! Administrative impositions account for a part of this but much of it is based on simple unawareness of the nature of learning. Many excellent teachers are unaware how grotesque are the techniques of truly poor teachers, hence are often indifferent to efforts to raise professional standards.

Teaching techniques which are "fantastic" are evidently of long standing, as witness St. Augustine again: *At enim vela pendent liminibus grammaticarum scholarum, sed non illa magis honorem secreti quam tegumentum erroris significant.* (True it is, that there are curtains at the entrance to grammar schools; but they signify not so much the cloth of state to privacy, as serve for a blind to the follies committed behind them.)

oral or written drill on grammatical forms. Some schools take one day a week for "grammar day." Sometimes prose composition is included. To say that such procedure is educative is to approach imbecility. There is ample experimental evidence to show that pupils learn neither Latin nor to improve their English. One study shows clearly that high-school students in the United States do not learn to *read* Latin at all; they *decipher* it. There is no relation to current events, no attempt to give meaning.²⁹ And yet both Cicero's orations against Catiline and Caesar's discussions of conditions in Rome abound with materials directly applicable to the interpretation of certain conditions in many large American municipalities. Study of Caesar's Commentaries becomes an idiotic game of identifying constructions and guessing at gerundives. The profound effects of Caesar's wars upon the present civilization of Western Europe are not even mentioned, let alone understood. Continuity with life and interaction with life, hence desirable educative results, can be secured in Latin as in any other subject *with pupils capable of learning on that intellectual level and with teachers who are competently informed regarding the nature of learning and teaching.*

Assignments are often imposed by teachers with no consideration of possible contribution to the pupil's experiential continuum. The present is often completely ignored. *Recitation* procedures often ignore or actively repress questions and contributions growing out of the pupil's continuous and interactive experience outside school. Formal question-and-answer recitations rule out the normal interaction of social discussion. The use of one text or meager references and the insistence on "facts" or other measurable results force attention to items which are lifted out of a normal learning process. Cramming results instead of learning. *Testing methods* further violate continuity and interaction by measuring memorized facts, formulas, or teachers' statements. Worst violation of all is the attitude that tests, final examinations, close and settle the learning. A pupil passes English but cannot use good English. He may pass first-year algebra but does not recognize equation problems in physics and chemistry. The "cram schools" which flourish in the vicinity of certain colleges, and even high schools, are material monuments to the incompetence of the regular instructors. *Marks* become the end point of learning instead of knowledges and powers acquired through experience and usable in continued life experience.

The *graded system*, each level an entity with materials assigned for mastery within given grade levels, completely ignores individual differences in ability and experience, that is, stages within the continuum of experience. The grade-a-year progress is likewise an interference with normal continuous learning. Within any given grade group there will

²⁹ Charles H. Judd, and Guy T. Buswell, "Silent Reading," *Supplementary Education Monographs*, No. 23, November, 1922, University of Chicago. Chapter 5 on Reading Foreign Languages contains astounding exhibits.

be a range of several years in chronological age, in ability, hence in level of experience. The rate of learning differs greatly from individual to individual so that all arbitrary divisions and processes inevitably violate continuity. Worse, the *imposition* of failure upon children who have not met a set of arbitrary, unadjustable grade standards is not merely an interruption of normal continuity as determined by the pupils' ability, maturity, and natural rate of learning, but it is conducive to serious detrimental effects upon mental hygiene. Here is one school practice which illustrates *par excellence* inimical and miseducative effects upon future growth. (See following pages for discussion of failure which is not detrimental.)

The typical *anti-social atmosphere* of many school-rooms, regimentation, and teacher-imposed discipline definitely prevent social intercourse and coöperation. Whispering, the natural and inevitable communication between normal individuals, is punished. Interaction is specifically prohibited! The very physical set-up of traditional school-rooms confines experience to meager forms of interaction.

The values of extra-curricular activities are not realized. Obvious clues in this field are often overlooked. Many boys who are competent, confident participators, even leaders outside school, have nothing to say in school. The school makes the blunder of labeling them stupid when there is ample proof that they are anything but stupid. The irrelevant and useless activities of the school do not invite participation. Similarly, the home environment is often overlooked as a source of worthwhile learning activities.

Going further afield we may note interferences with continuity and interaction resulting from failure of the *school personnel* to coöperate among themselves. The compartmentalization of the curriculum, departmental jealousies, and the like, contribute to this. The stage-design project referred to was made possible through the unselfish coöperation of several high-school departments. It was handicapped somewhat by the refusal of one department to have anything to do with it. This department was concerned with prerogatives and not with the education of high-school students. Interferences from school board members often prevents continuity and interaction in the experience of the children. Insistence on certain texts, certain methods, refusal to listen to technical advice, the appointment of incompetent but politically connected teachers, all are cases in point. One school board prohibits any kind of excursions outside the school grounds. The children are to learn about the world but they are to hang their clothes in the cloak-room and under no circumstances to go near the world.

The *political nature* of many school positions results in personnel so untrained and incompetent that educative experience for the children cannot result from the teaching procedures used.

Finally many *teacher-training institutions* affect this matter by giving

their trainees devices and techniques instead of principles and understandings basic in the learning process.

All of the foregoing represents interference with continuity and interaction, two inescapable aspects of learning. The total picture, however, is not all black; many school systems have made definite, in some cases extensive, efforts to avoid the violations just noted, and to provide for highly desirable learning experiences.

Improvements designed to provide continuity and interaction. The whole range cannot be covered; the following represent samplings.

The elementary schools are substituting for the separate subject course of study the *unified program* organized in functional units. The core for organization is not the logic of adult-organized subject matter, but needs and purposes in the learner's current on-going life and appropriate learning outcomes. Learnings valuable in later life are the same as those now necessary. Continued experience in and out of school matures present understandings and abilities into adult form and use. Strict grade and subject divisions have long since been abolished in many good elementary schools. The administrative "period" of twenty or forty minutes has disappeared. An educative experience which is developing cannot be carried on in twenty-minute sections. It should not be interrupted by arbitrary requirements. (This should not be misinterpreted to apply to more mature study of special subjects on upper levels.)

Children should be, and in a few places increasingly are, taken to *visit school*, kindergarten, or pre-school as the case may be. The pre-school child should be taken to visit the first grade. The teacher should become acquainted with the prospective pupil's home and environment. A few enlightened nursery-school teachers are visiting homes and working with mothers of very small children. The best type of continuity and interaction may result from this.

The secondary school is increasingly using various forms of *correlation*, *fusion* or *coördination* of subject matter. Organization of related subjects into *broad fields* appears in many schools. A few are experimenting with even more total unification after the elementary-school pattern. The new *core curriculum* may be organized around subject-matter learnings or around the pupil's life problems. The *special subjects* themselves on the upper levels are being internally reorganized into more functional form. There is increasing effort everywhere to relate courses to life purposes. The college preparatory division in a few advanced high schools shares effectively in this movement. *Work experience* is widely advocated as a prime means of providing continuity and interaction in the learning experiences of secondary school students. There is increasing recognition of the value of *extra-curricular* activities. The clue contained in their vitality for the learner is being utilized. *Individual differences* are being increasingly recognized as the

secondary school faces the problem met by the elementary school from 1900 on, namely, providing education for all levels and types of intelligence, interest, aptitude, background, and probable destiny. The problem is being met not only with provision for different rates of learning, but with recognition of different levels of achievement. Most important of all it is being met through provision of different materials and activities within a lesson or unit. *Guidance* is an increasingly important improvement within the modern school.

The appearance of new courses is one of the most significant developments in this field. A fragmentary sampling includes Problems of American Democracy, Community Organization, Propaganda Analysis, Consumer Science, Household Chemistry, The Family, Comparative Economic Systems, Economic Geography, Nature of Personality, Psychology for Life. Forerunners of these were earlier additions such as Community Civics, General Shop, General Language, Home Economics, and many others. One course in chemistry was made by a teacher who faithfully kept track for some years of all the questions asked by pupils about chemical phenomena in everyday life. Another course in chemistry took up such things as the analysis of soaps, tooth pastes, baking powders, anti-freeze mixtures, cosmetics, lubricating oils, etc. The results were not merely chemical knowledges useful every day but many social results such as a tendency to read advertising more carefully, a skepticism toward the typical extravagant advertising claims, ability to prove that much advertising is deliberate falsification. There are die-hards who say that this is not chemistry. That is as may be. That it is useful to hundreds of thousands of citizens who will never need "chemistry" is too obvious to wrangle over.

Libraries announced during the depression years that adult reading of serious non-fiction books in the fields of economics, sociology, government theory, in specialized discussion of capitalism, socialism, and democracy increased enormously. The depression itself revealed the gross ignorance of so-called successful citizens concerning the social order in which they lived. The library report indicated the failure of the schools to prepare citizens for understanding of the world in which they live. The modern school, despite vicious criticism from vested interests, is trying with earnest sincerity to provide continuous, interactive contact with the problems of everyday living.

Criticism of the modern school also arises within the academic walls. Many, including professors of the liberal arts colleges, accuse the modern school of ignoring the *cultural tradition* of our civilization and of denying children contact with that civilization. This criticism is based on one-hundred-per-cent ignorance of what the modern school is doing and of the data behind its efforts. The modern school possesses irrefutable data showing that hundreds of thousands of children now coming to high school cannot ever utilize the cultural materials pro-

vided for the more highly selected pupil population of bygone years. The modern school far from denying these children cultural contacts is making tremendous effort to develop subject matter and methods which will bring these materials within the understanding of these children, to give them interactive experience with it in line with their purposes and within their interests and understandings. The modern school, contrary to the critics, is bringing cultural background to thousands of students who could get it under no other conceivable conditions. In some areas the modern school is doing a better job with this than did the traditional school with its more favorably selected population.³⁰

Assignments, if made as such, are made increasingly within units organized around pupil purposes. Pupils are encouraged to *participate in determining* and carrying out learning situations. *Outside stimuli* to learning will be constantly introduced into classrooms: newspapers, magazines, radio presentations, moving pictures, speakers, etc. Definite efforts are made to produce a *social atmosphere*. Discussion, committee work, interchange of fact and opinion, free movement are necessary in learning to work together in a lifelike manner. The introduction of movable furniture in elementary schools is a formal but important factor. Pupils are encouraged to ask questions and to contribute from their own experience. The urge to whisper is legitimized into committee discussion and socialized recitations.

More important, students will *go out to meet experiences*. The community will become one of the chief sources of learning situations and materials. Students will not merely visit community agencies, jails, courts, welfare organizations, museums and libraries, but will participate in many community enterprises. The work experience mentioned above may become in the near future actual participation in the construction of public works, part-time employment in industry or agriculture, military service.³¹

The formal *recitation* is giving way to *work periods* involving from twenty to eighty different learning activities. Emphasis is increasingly upon the achievement of understandings, abilities, and attitudes instead of upon memorization of isolated facts or acquisition of isolated skills. Limited formal testing is giving way to continuous *evaluation* based upon observation of behavior. *Changed behavior* due to understandings

³⁰ An interesting and illuminating note on this problem which may be read at this point will be found on pages 420-423 of Raymond H. Wheeler, and Francis T. Perkins, *op. cit.*

³¹ A whole chapter is devoted later to interaction with the community. Meanwhile this discussion can be made concrete through reference to Morris R. Mitchell's article, "Youth Has a Part to Play" in *Progressive Education*, Vol. 19 (February, 1942), pp 88-109. One-hundred-sixty-eight illustrations of participation are described. See also Stuart Chase, "Bring our Youngsters into the Community," *Reader's Digest*, Vol. 40 (January, 1942), pp. 5-8.

and attitudes is the only true test of achievement. Percentage or letter marks have been for some time giving way to descriptive *records of behavior*. Examination and marking systems designed to punish, or reward, or to "finish" a subject are being replaced by diagnostic techniques designed to aid further progress.

Systems of *continuous progress* are slowly supplanting rigid graded systems. Flexible grouping based on social maturity is a definite aid to continuity and interaction. Arbitrary *failure* imposed on pupils through conditions beyond their control is increasingly being eliminated. Failure owing to faulty definition of problems, to faulty planning, to neglect of observable conditions—failure brought on by the learners themselves—is a definitely educative experience and has no detrimental effects upon mental hygiene. In fact it is likely to contribute to good mental hygiene and to integration by showing young people through their own practices how to meet and correct failure.

The appointment of trained, non-politically controlled, *competent personnel* is a definite aid in improving learning situations. Teachers should be parts of the community and live within its activities and problems. *Non-interference* by school boards with the technical and professional processes of education is well established in certain parts of the country. Finally, teacher-training institutions are increasingly sensitive to the need for training teachers in modern psychology and principles of teaching.

DISCUSSION QUESTIONS

1. This section contains several pages listing general school procedures which violate the principles of continuity and interaction.
 - a. Add to the general listings of possible, from your experience or observation.
 - b. Give specific illustrations of any two or three of the general categories. Take these illustrations from experience or observation only.
2. Proceed as in Question 1 above for the lists of general procedures designed in accord with the two principles.
3. Give from experience or observation specific illustrations of lack of balance between internal and external factors in integration; illustrations of efforts by a school or a teacher to bring about a balance.
4. Illustrate with both in-school and out-of-school cases the fact that interaction changes both the individual and the environment.
5. What are some of the actual difficulties in the way of desirable interaction with the environment during the period of schooling? Define and illustrate. What can you do as a teacher to get around these obstacles?

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SECTION 3

EDUCATIVE EXPERIENCE CONTRIBUTES TO THE NATURAL INTEGRATION OF THE LEARNER

The word integration has been bandied about in recent educational discussion. Emphasis differs depending upon whether the speaker is looking at individual or social integration, at the process, or at the continuing result.

The most important meaning for us relates to the process of integration in the person. The desired learning outcomes are acquired in such way as to be woven into the already existing system of understandings, attitudes, and abilities. The things learned become a part of the learner's personality. They have not merely been "added" to the "sum of knowledge possessed," to lie dormant until repeated upon demand. They have been acquired functionally as dynamic factors which enter into the continuous determination of behavior. They truly constitute changes within the organism. Integration is continuous. There is no end point in the sense of a status achieved. As experience is interactive with an ever wider environment the individual individuates items and incorporates them into what he is.

Integration may also refer, if we define carefully, to the relationships of the individual to other individuals and to society. The learner "integrates" himself with other persons, with the conventions and institutions of his society. This means that he comes to understand, influence, and get along with other persons; to understand, get along with, and improve the institutions within which he lives. These items are separated only for purposes of discussion. All integrating takes place within a simultaneous functional learning experience.

Integration means in simple terms learning things which are truly useful and meaningful to the learner at the time and which will continue to be useful in everyday behavior so far as we can see ahead. An integrating person is better able to maintain his physical and mental health, better able to attack and analyze new situations. The product of integration is an integrated person; or speaking more precisely, the product of integrating is an integrating person. The emphasis is on integrating, not integrated. An integrating personality is one which possesses a unified view of its world and of the place of that personality therein. An integrating personality is one in which knowledges, de-

sires, abilities are in essential agreement; one into which new controls are unified after being individuated. Integration in an intelligent purposing agent means sanity, or wholesomeness of mind, body, emotions.

It is important to know that integration is a primary characteristic of living organisms. Human beings are born physiologically integrated and continue to grow in an integrating fashion physically and mentally until parents, teachers, and other factors interfere. The point is, particularly with young children, that the school should maintain and promote the normal, primary integration of living organisms by providing learning experiences which are purposeful, continuous, and interactive.

Factors which interfere with normal integrating. Practically this entire volume is given over to presenting factors which promote integration, but it will be well to summarize briefly those factors which are inimical to it. The school factors have been amply discussed in the foregoing paragraphs on continuity and interaction. Since the three are functionally inseparable, everything said of the first two applies to the third. In addition there are a number of very important individual and social factors which interfere with integration. These have been admirably outlined by Lindeman:²²

1. *Morphological*: Bodily structure and form may be so far asymmetrical as to cause the individual to consider himself to be incapable of complete identification with his fellows.
2. *Physiological*: The functions of the organism may make it difficult for an individual to keep pace with his fellows in a similar environment.
3. *Psycho-functional*: The operations of the mind may be so far disordered and illogical as to separate the individual from his fellows.
(Note. The above listed causes of disintegrativeness may be thought of as being "inner" conditions belonging to the individual arising from accident, sickness, or heredity.)
4. *Technico-cultural*: The part which the individual is asked to play in society may be so highly specialized because of technical considerations that he is unable in his occupational experience to function in conscious relation to wholes.
5. *Socio-cultural*: The social setting within which the individual is obliged to live may bring dissatisfactions because:
 - a. He will be rejected by certain persons.
 - b. He will be rejected by certain groups.
 - c. He will not concur with the goals, ends, or values set by the group.
 - d. He will not agree with the methods or means utilized by his fellows in pursuing their ends
 - e. He will resist attempts to enforce conformity upon him through dominance.
 (Note. Whereas the first three causes of disintegrativeness listed tend to set limits of creativeness for the individual because of the non-integrative quality of his person, the last two causes set similar limits in an external manner, that is, because of conditions existing outside the individual. Separations of this sort are, of course, arbitrary and artificial and may be used merely for purposes of simplicity.)

²² Page 25 of Chapter 2 of L. Thomas Hopkins, *Integration*, written by E. C. Lindeman (New York, D. Appleton-Century Co., 1937).

Illustrative evidence of integrative and disintegrative behavior. It is possible to observe children in and out of school, and adults in everyday activity, and to note certain ways of acting which are presumptive evidence of integration or lack of it. Following is a brief sampling of such evidence and of the categories within which it falls:

<i>Integrating personality</i>	<i>Non-integrating, sometimes disintegrating, personality</i>
1.	1.
active, curious about his surroundings; makes many and wide contacts	inactive, not interested in new experiences; prefers narrow, familiar environment
2.	2.
makes friends, talks, laughs, (may whisper, create disturbance in school)	shy, avoids contacts with others, "bashful," often called a "good" child by teachers and parents
3.	3.
shows sense of humor, can "take" a joke on himself, is a "good sport"	over-serious, over-sensitive, afraid of being laughed at, resents "kidding"
4.	4.
meets problems, "tensions," with confidence, even with pleasure	avoids, escapes, refuses to face problems or difficulties of any sort; when escape is impossible, meets problems with "can't do it," obstinacy, tantrums, cheating etc.
5.	5.
defines problems, asks questions, tries to see "what it is all about"; willingly undertakes work of planning for solutions, work of carrying out plans	does not see what to do; "what is the assignment?" grumbles that what is wanted "isn't clear"; "is this what you want?"
(a) plans and uses imagination in terms of reality	(a) plans in terms of wishful thinking, in terms of materials and abilities not present or obtainable
(b) uses past experience in solving difficulties	(b) insists on fantastic solutions out of line with experience
(c) gathers materials and organizes with discrimination	(c) gathers materials at random; cannot produce usable outlines or classifications
6.	6.
willing to submit his suggestions and beliefs to criticism and test	refuses to submit to test or experiment; petulant under criticism
7.	7.
willing at same time to "stand up" for his contributions until convinced they are incorrect	unsure, easily backs down, constantly asks others, "Is this the answer you got? Do you think this is right?"

*Integrating
personality**Non-integrating, sometimes
disintegrating, personality*

8.

willing to accept the consequences of his conclusions, to accept results of errors as well as fruits of correct decisions

denies liability for consequences of errors, "the other fellow's fault," "passes the buck;" claims credit for any successes, or for large share of group success

9.

accepts responsibility commensurate with ability and level of maturity

avoids leadership; does not "come through" with his part promised or implied

10.

distributes credit; takes modest pride in own contributions; is not overbearing; does not bully; does not find it necessary to cheat

belittles others, over-asserts his own ability and contribution, bullies; cheats

11.

expresses emotion but is not controlled by it; increases control over undesirable emotional expression; controls temper; does not insist on own way; does not cry, sulk, refuse arbitrarily to participate

undue failure to control undesirable emotional expression; cries, screams, "won't play," must have own way

12.

works and plays with others; participates easily and naturally in co-operative activities, helps others as a matter of course

refuses to share, is over-competitive, must always be at "top" of class, clamors for "A" grades; undermines others if possible

13.

likely to have hobbies, pets, and special interests; uses books as sources of information or for pleasure

narrow and limited interests outside necessary activities; uses books as escapes from reality in some instances

14.

habitually happy and confident (without being a Pollyanna); free from worry, doesn't whine for what cannot be achieved; confident of place with and respect from parents, teachers, and mates; in short, enjoys good mental hygiene

habitually gloomy and fearful, worries; always "stewing around," unhappy because of inability to avoid the inevitable; exhibits fear of parents, teachers, and mates; poor mental hygiene

15.

generally in reasonably good health;

"enjoys poor health"; ill-defined, non-localized pains and aches;

(This is not always given as an index of integration, but it is a reasonable inference from the organismic concept. Evidence is beginning to appear showing that certain illnesses are closely correlated with factors contributing to disintegration. A college student had innumerable colds which were found to be correlated with continued, serious failure in college courses)

<i>Integrating personality</i>	<i>Non-integrating, sometimes disintegrating, personality</i>
attends to his normal physical needs without undue difficulty	nail-biting, nose-picking, etc.; nervous habits in regard to eating, elimination, etc.

Integration (continuity and interaction as well) primarily improved through establishing organic connection between life and learning, not through pedagogical devices. The numerous improvements designed to improve learning experiences listed in the foregoing pages are mechanical devices. They are useful and important, especially for beginning teachers. It must be emphasized, however, that the truly fundamental requirement is to keep learning experiences functionally connected with the on-going life of the learner. With this organic connection established, the devices then become useful in carrying the details. The process of establishing this organic connection has been mentioned and illustrated several times in preceding chapters. A comprehensive statement will be found in Chapter 10 which deals with the organization of experience units.

The purposes selected from the on-going life of the learner must also square with and further the social purposes of our approved democratic mode of life.

Other statements of the characteristics of educative experience. All writers on principles of learning and teaching are agreed upon continuity, interaction, and integration as prime characteristics of learning experience. Various writers distinguish certain subsidiary characteristics and differ slightly among themselves in stating these secondary items. In order that students meeting different statements be not confused, the writer briefly relates his particular statement of characteristics to another inclusive statement. Wynne²⁸ distinguishes six features:

1. Relativity of experience
2. Sociality of experience
3. Need of experience
4. Unity of experience
5. Creativity of experience
6. Selectivity of experience

In this volume *relativity* of experience has been discussed in part under mutual contingency. Further development will appear in the following chapter. The *need of experience* was presented in connection with the

²⁸ *Op. cit.*, page 13 for list. Entire pamphlet is an exposition of the six.

emergence of purpose. *Unity* of experience has been both implied and directly described throughout the volume so far. It will be developed in great detail in the chapters on the organization of units. *Creativity* of experience will receive separate treatment in Chapter 4 of the volume of Supplementary Material.

The *sociality* of experience is neglected and even denied in many ultra-conservative schools which quiz individuals on memorized, assigned materials. Here learning is a solitary process, but it is not educative learning! Personality and learning are social products. The value of any learning experience is greatly affected by the number, variety, and complexity of the associations and connections which accompany it. Even in systems of individualized instruction, the individual aspect is primarily in the practice of skills. The learning products thus acquired were socially produced in the first place and are learned for use in social situations.

Sociality of experience, however, involves more than this simple and obvious connotation. Social learning experiences should also constantly widen the individual's social interests, sympathies, understandings, and concerns. This is of basic importance in a world which is increasingly coöperative and interdependent.

An earlier paragraph stated that the individual does not react to all elements in his environment but only to certain selected items. *Selectivity* of experience is a simple and observable fact. The educational problem is to make the choice of experiences desirable and beneficial. This necessitates learning activities which give the learner opportunity to make choices, to follow choices, to learn through intellectual analysis of his own successes and failure. The teaching implications are developed in detail in Chapter 10 on the guidance of teaching-learning experiences within units.

DISCUSSION QUESTIONS

1. State clearly and wholly in your own words what you understand integration to be, both the process of integration and the continuing product. Use illustrations from school and from other social situations. Answers using the words of the book are particularly unacceptable here.

2. What is the use or importance of knowing about integration, quite apart from its use in educational procedure?

3. Describe as specifically as you can and in detail, everyday classroom evidences which would aid you in distinguishing between integrating and non-integrating personalities. That is, give specific illustrations for any of the fifteen points listed on pages 136-138. Watch for cases during your observations. Do likewise for these points but using out-of-school situations.

4. Illustrate any of the five general causes of disintegration listed on page 135, by describing specific instances. In-school or out-of-school material may be used. Note cases in psychiatric literature.

The following questions are based upon reading in Hopkins, *Integration*, Chapters 1 and 2.

5. What are the important implications of the two sentences on page 6 which begin, "Integrating behavior in any situation..."
6. Develop the bearing of the last paragraph on page 9 and the top of page 10 upon the contrast between traditional and modern methods.
7. Note the good list of criticisms on page 27 relating to so-called attempts at integration in education as listed on page 26. The criticism of progressive education in number 6 is being corrected as rapidly as possible by the progressives themselves. How?
8. Illustrate and develop the far-reaching implications of the statement, page 28, "Contemporary educators have been conditioned in the direction of the mechanics of education"
9. Develop a series of educational implications for the two affirmations suggested, the first on page 29 and the second on page 31.
10. In everyday terms, what is the meaning of page 33?
11. Develop as concretely as possible the educational implications of the three points on page 34.

READINGS

- BILLETT, Roy, *Fundamentals of Secondary Teaching* (Boston, Houghton Mifflin Company, 1940), pp. 123-138.
- HOPKINS, L. Thomas, *Integration* (New York, D. Appleton-Century Company, Inc., 1937), Chaps. 1 and 2.
- , *Interaction* (Boston, D. C. Heath and Company, 1941). Use the index.
- National Department of Supervisors and Directors of Instruction, *Newer Instructional Practices of Promise, Twelfth Yearbook* (Washington, D. C., National Education Association, 1939), Chap. 5.
- WYNNE, John P., *The Educative Experience* (Farmville, Va., The Herald Press, 1940), Chap. 5.

GENERAL DISCUSSION QUESTIONS FOR WHOLE CHAPTER

1. Reexamine Questions 7, 8, and 9 at the end of Section III, Chapter I. You are now in position to amplify greatly the simple answers made earlier. Answer each question again in a more extended and organized statement. Make it in the form of a popular explanation to the lay public if desired.
2. What in general makes an experience miseducative—that is, prevents its having a favorable influence on later growth? Prepare a statement covering several major points, using concrete illustrations from your own experience or as observed in teaching.
3. *Written.* Two days may be allowed for preparation if desired. Proceed as directed in the middle paragraph, page 91 in Billett. These summaries are for your own benefit and not to be handed in. Then prepare to hand in a summary of principles as indicated in the last paragraph on page 97. (This exercise will be found to be genuinely difficult but equally enlightening. It will at the moment extend that clarify the student's insight into the nature of principles of learning. It will be good background for the summary in Chapter 7.)
4. *Oral or written.* Read carefully the discussion of levels of coöperation on pages 214-215 in Hopkins' *Interaction*. Note for a period of several days the level of cooperation operative in classrooms observed. Prepare a summary statement of critically analyzed illustrations. (Protect teachers using poorer methods by not using names.)
5. The principles of teaching and learning in the preceding chapters have been illustrated or exemplified frequently through quotations from poets,

novelists, philosophers and other non-technical writers: Peter of Blois, St. Augustine, Shakespeare, William Penn, Charles Dickens, Robert Browning, Henry Adams, Thomas Wolfe, Pierre van Paassen.

- a.* Analyze very briefly any one of the quotations indicated, showing in some detail what principles are being upheld.
- b.* Report other similar passages from your general reading. (Be on the lookout for materials of this type during the remainder of the course.)

5

The Nature of the Learner

SECTION I

BIOLOGICAL AND PSYCHOLOGICAL PRINCIPLES USEFUL IN GUIDING LEARNING

The organismic concept of the child. The child comes to school, as popularly supposed, to get his mind trained. To the great annoyance of many teachers, the child insists on bringing his body and his emotions with him. This semi-flippant statement introduces us directly to the modern concept of "the whole child." The whole child comes to school. More than that, he learns all over: he learns as a whole child and not by sections. It is quite impossible to train body or emotions without affecting each other and the intellect as well. As a matter of fact the very terms, intellect or mind, body, emotions, are arbitrary designations. The aspects so named are not separable entities. Mind and body are functioning aspects of one unified whole. The individual reacts as a unified, integrating whole. The living child cannot be divided up for teaching purposes. Mature learners are capable of more differentiation than young children and hence can subordinate one aspect to another more successfully. This permits specialized learning on upper levels.

The illustrations in Section II of Chapter 2 may be recalled. The boy in Kipling's story learned to read (a perceptual and eventually conceptual affair) but he also learned to dislike reading (an emotional acquisition) and to avoid reading (an attitude). The little girl in the oil-field school came to secure the simple skills of reading, writing, and arithmetic, but the surroundings in which these were taught stimulated emotional learnings. These children interacted in a unified manner with a whole unified learning situation. The children could not be dissected to react piecemeal, nor could the situation be controlled so that selected items only would affect the child.

It is true of course that for more explicit description or for diagnosis we can measure this and that item separately.¹ Analytic methods will give

¹ This chapter is particularly important in that it will supply an introduction to and overview of the large body of scientific experimentation and data which validates the principles developed in preceding chapters on a common-sense basis only. The deliberately oversimplified presentation here is amply safeguarded by footnote references to extensive original sources.

us more minute data about given aspects of the living whole. It must never be forgotten, however, that the living whole is primary, determines the nature of the parts, and is more important than any of the parts. Interpretation of artificially isolated parts can be made only in terms of the nature of the living organism as a whole.

The biological origin of organismic concept. This term is borrowed from biology, where it is used to designate a total living organism. All living organisms are born integrated, and integrating unities and are possessed of functions, powers, or controls called *gradients* which tend to guarantee continued unity unless interfered with.

A gradient is, in simple terms, a rate and direction of living, of maturation, of metabolism, or of sensitivity to outside stimuli. To illustrate: in simple cell the surface shows the greatest susceptibility to heat, pressure, etc., and a steadily decreasing susceptibility toward the center. Gradients result from dynamic relationships with the environment. Developing early, they are primary and in turn affect local growth processes, as will be illustrated presently. Organisms differ radically in their gradients, i.e., in rates and directions of growth. These facts are basic in understanding growth and learning, and differences therein among children.

The nature and function of these physiological gradients has been well established by extensive research in biology. The life-long work of Child is a case in point, though many others have also contributed.²

Growth is affected both by gradients and by external influences. The growth of organisms seems to be (ordinarily) an orderly and progressive differentiation of parts and functions out of an originally simpler and more homogeneous physiological pattern. Tissues become more specialized and organs of the body come into being, as will be illustrated below. This growth, which is the life and learning of the organism, is determined in part by the individual, inherited, organismic pattern. The gradients determine in part the possibilities, the rate, the range, the directions, and the complexities of adjustments, hence of life and of some learnings. The influence of the gradients is, however, neither deterministic nor absolutistic. The gradients may be altered and new gradients may be set up through outside influence. In fact Child believes

² C. M. Child, *The Origin and Development of the Nervous System* (Chicago, University of Chicago Press, 1921).

—, *Physiological Foundations of Behavior* (New York, Henry Holt and Co., 1924). The authoritative pronouncement.

—, "The Beginnings of Unity and Order in Living Things," *The Unconscious, A Symposium* (New York, Alfred A. Knopf, Inc., 1928), pp. 11-42.

R. S. Lillie, *Protoplasmic Activity and Nervous Activity* (Chicago, University of Chicago Press, 1923).

G. E. Coghill, *Anatomy and the Problem of Behavior* (New York, The Macmillan Co., 1929).

H. S. Jennings, *The Behavior of Lower Organisms* (New York, The Macmillan Co., 1906).

A. A. Schaeffer, *Amoeboid Movement* (Princeton, N. J., Princeton University Press, 1929).

the primary gradients to be themselves an expression of a dynamic relationship between living organisms and environment. We may repeat that mutual interaction is fundamental.

An illustration of controlled physical growth. The foregoing difficult and abstract exposition may be made concrete. Let us see how the gradients work in controlling early physical growth. Protoplasm, as we know, is extremely plastic, hence structure and function are capable of considerable development. The body cells are structures through which the processes of life and growth express themselves. Natural growth in early stages is greatly affected by the primary physiological gradients.

Living organisms soon develop, for instance, an anterior-posterior (head-to-tail) gradient, one from front to back, and another having its highest rate of sensitivity and metabolism in the middle and tapering off toward either end. Recall that a gradient is a rate and direction of growth, metabolism, sensitivity, etc. The layer of cells in an embryo showing marked head-to-tail gradient develops into the nervous system, the sense organs and the skin. The layers of cells possessing the third gradient noted above become the inner lining of the digestive tract, the highest activity being in the stomach and upper intestine. Activity tapers off in both directions in terms of the gradient. Even more interesting proof of control of growth by the gradients is seen in experiments in which undeveloped nerve tissue from head and tail regions is interchanged.³ The tissue which would have grown into a head now grows into the structures of the tail and vice versa. The growth process is determined not by the nature of the tissue itself, but by the placement of the tissue within a gradient.

Living organisms constantly seek equilibrium. A common-sense analysis of observable behavior was presented in Chapter 4 showing that the behavior of living organisms seemed to result from a loss of equilibrium or adjustment between organism and environment. Child states that the "excitatory relations [between organism and environment] constitute the primary factor in the behavior of living things."⁴ Ample evidence exists showing life to consist of continuous effort to achieve a dynamic equilibrium. Environmental factors constantly disturb equilibrium, creating the state of tension from which activity and eventually growth and learning result. That is, the principles presented in Chapter 4 on the basis of simple common-sense analysis are actually validated by the results of years of research in biology. Many of them were recognized by competent thinkers long before research validated them.

The fact that a given and fixed equilibrium is never reached makes possible learning, improvement, evolution. Change is constantly going

³ S. R. Detwiler, "Experiments in the Reversal of the Spinal Cord in Amblystoma Embryos at the Level of the Anterior Limb," *Journal of Experimental Zoology*, Vol. 38 (October, 1932), pp. 293 ff. Many other experiments are reported.

⁴ C. M. Child, *Physiological Foundations of Behavior* (New York, Henry Holt & Co., 1924), p. 15. See also Chapters 2 and 11-15.

on within the organism and in the environment. Living organisms are not closed systems maintaining their equilibrium in defiance of external disturbances but rather they are open systems in constant mutual interaction with the environment. Development and learning result from the interactive relationship.

Primary unity in the nervous system. Franz, Child, Herrick, and more recently, Lashley have piled up evidence showing that the nervous system, so important to learning, functions as a unit, as a whole, and all over.⁵ Misled by early work on specialized functions, seemingly localized in the cortex, many neurologists and psychologists believed that the entire nervous system was highly specialized. Stress was placed on reflexes and the combination of reflexes into large units, the conditioning of responses, and on specific learnings. The famous S-R bond theory of Thorndike was based on this. The later evidence forced abandonment of these conceptions. The brain and nervous system develop in accord with organismic laws. There is specialization and localization but these develop out of an originally unitary system. Furthermore, the original unity and control are never entirely relinquished. The brain is a dynamic field of potentials in balance. As with the physiological organism, an upset to equilibrium initiates action. This action involves the whole area as a unit. The whole is not a sum of parts, reflexes, and the like, but is a unit which determines the functions of the parts.

For illustration we may refer to Lashley's experiments. Various amounts of the cortex were extirpated in rats and other animals. According to the older theory of the functioning of the nervous system there should be much loss of specific habits which had been previously learned, that is, loss of memory. However, the loss was not nearly so great as had been expected; in some cases it was negligible. Furthermore, the habits and skills lost were quickly relearned and soon performed as well as before. This demonstrates conclusively that the learning of specific things is not the specific property of specific neurones, but is a general function of the whole nervous system. In one striking instance a rat which had been operated on lost the power to make right-hand turns in running a maze learned before the operation. Instead of relearning the right turn the rat turned to the left, completing a 270-degree turn in order to go right. This is an astonishing demonstration of the flexibility of the nervous system. There is a general integrative, adaptive power or function which affects the whole system. The original

⁵ S. I. Franz, "On the Functions of the Cerebrum", *Archives of Psychology*, No. 2 (March, 1907), and many other later papers and monographs.

C. M. Child, *The Origin and Development of the Nervous System*. Other later research papers and books.

C. I. Herrick, *Neurological Foundations of Animal Behavior* (New York, Henry Holt and Co., 1924).

K. S. Lashley, "Basic Neural Mechanisms in Behavior," *Psychological Review*, Vol. 37 (January, 1930), pp. 1-24; *Brain Mechanisms and Intelligence* (Chicago, University of Chicago Press, 1929).

learning of the habits now partly lost through extirpation of cortical tissue had evidently affected the whole nervous system in such way as to facilitate relearning. Patterns of learning instead of highly specialized localizations are indicated.

Naturally there are differing degrees of integration and unity. Minor conflicts and inconsistencies do appear. There is, however, a fundamental tendency toward primary unity, all-over functioning, and organismic development in the nervous system.

Lashley's work is the more important since it goes beyond animal experimentation and includes observation of human patients suffering from injuries to or disease within the brain and nervous system. Lashley and other neurologists report astonishing absence of chaotic behavior, or, far less disorder in function even when large and irregular lesions are found in the brain. There is often considerable loss of sensory or motor capacities, there may be actual amnesia, emotional deterioration, even dementia; but the general pattern of orderly behavior is evident even to the untrained observer. This is particularly true in amnesia.

Considerable newspaper and magazine publicity has been given to "brain wave" experiments.⁶ The usual exaggerated and inaccurate accounts of the photography of "brain waves" have attained considerable circulation. The facts are that a small number of very difficult investigations have been carried on from which attempt is being made to derive some facts concerning neural activity in the cortex. The brain is described as a field of fluid dynamic energy potentials in balance. Activity results from disturbance of this equilibrium. Wheeler⁷ and his students believe that the experiments show that gradients exist within the energy fields in the brain and that the gradients take different patterns in the case of different types of activity. This concept is similar to the one already presented for the physical organism: growth and activity controlled by interaction between gradients within the organism and the influence of the environment.

The facts are as yet, certainly not clear. The foregoing paragraphs mean in common-sense terms that the mental activities of problem solving, remembering, imagining, and the like are not separate types of activity involving discrete parts of the brain but are each of them activities of the brain as a whole. Each develops out of a total activity. This would give general corroboration again to the general theory of learning and teaching so far developed.

⁶ S. H. Bartley and E. B. Newman, "Recording Cerebral Action Currents," *Science*, Vol. 71 (June, 1930), pp. 537 ff.

⁷ Raymond H. Wheeler and Francis T. Perkins, *Principles of Mental Development* (New York, Thomas Y. Crowell Co., 1932). Chapter 4, particularly pages 70-71, report a number of unpublished studies on this.

George W. Hartmann, *Gestalt Psychology* (New York, The Ronald Press Co., 1935). The theoretical support for the views expressed here which preceded the physiological experimentation is largely in the German literature. It is well summarized briefly in Chapter 13, particularly pages 202-209.

Behavior follows the organismic pattern. The first reactions of living things, even in prenatal behavior, are reactions of the total organism. First movements are undifferentiated mass movements. The organism reacts all over. One need not turn to the numerous animal experiments but needs merely to observe a baby crying. Instead of merely exercising the vocal cords to secure relief from a given discomfort, the baby cries all over. It cannot cry, as a matter of fact, without waving arms and legs, clenching and unclenching its fists, tossing its body around, changing its rate of breathing, etc., etc.

With maturation and experience more precise movements emerge out of this original undifferentiated mass movement. Babies not only cry all over, they perform any and all acts all over at first. A baby reaches for a rattle not merely with its hands and fingers but with its arms, legs, body. In fact a young baby cannot reach with its hands and fingers. It has neither matured the proper nerves and muscles, nor had the experience of differentiating the smaller movements. Eventually arm or leg or head movements are differentiated out of the total movement. Finally delicate movements of fingers or eyes may be made. Babies at first grasp objects with the whole hand, clumsily and without due adaptation to the shape of the thing grasped. The thumb cannot be opposed to the fingers. With maturation and experience precise and specialized behavior is achieved.*

The first attempts of children at handwriting, skating, or any skill are undifferentiated mass movements. Primary children when first using a pencil write all over, in that the whole body seems involved. Maturation, experience, which brings contacts with many directive influences, eventually develops a coordinated series of movements, a skill, which meets the need. So also it should be emphasized with adults learning to swim, to swing a golf club, to display certain social graces. Awkwardness, the colloquial designation of the learning period for skills, is not confined to adolescence. Later paragraphs on insight will further clarify this point.

Clearly, it is wasteful to try to secure given reactions from children in advance of maturation and experience need. Realization of the facts revealed by long continued research has accounted for important changes in school-room procedure. Small children are not held to small, precise handwriting as they were a few years ago. Many small, precise manipu-

* C. M. Child, *Physiological Foundations of Behavior*.

G. E. Coghill, *op. cit.* See also papers in periodicals.

C. I. Herrick, *op. cit.*

O. Irwin, "The Amount and Nature of Activities of New-Born Infants under Constant External Stimulating Conditions the First Ten Days of Life," *Genetic Psychology Monographs*, Vol. 8 (July, 1930), pages 1-92.

K. Koffka, *The Growth of the Mind* (New York, Harcourt, Brace and Co., 1924. Revised 1928).

J. B. Watson, *Psychology from the Standpoint of a Behaviorist* (Philadelphia, J. B. Lippincott Co., 1919. Second edition 1924). See also many papers by Watson and his students.

lations in kindergarten and primary have been removed. Large objects and large movements are the rule. Natural activities fitted to the level of maturation have been substituted for precision drills in lower-grade physical education.

Mental life of the individual less easily described. The descriptions of the biological nature of the individual and the development of his overt behavior are generally accepted by biologists, neurologists, psychologists, and anthropologists. Efforts to describe the origin, nature, and development of mental life and learning precipitate marked differences of opinion. Psychologists are in general divided into two major camps: the associationists and connectionists on one side, the field-theory group on the other. Conditioning is regarded as a special case within the first group. Three versions of field theory exist, organismic, gestalt, and topological. Of these three versions the gestalt is the best known.

The development of various schools is inevitable within a comparatively new field. Each of the so-called schools is one method of approach to, one partial explanation of, an area which is still being reduced to order and system through research and interpretation. Each is an honest effort to explain mental life. Maturity in the field should bring greater unity. The excellent and enlightening symposium on the psychology of learning contained in the *Forty-first Yearbook*, Part II, of the National Society for the Study of Education, shows a definite effort toward reconciliation on the part of leading psychologists. Progress in research and interpretation will doubtless further reduce differences and bring eventual unification.⁹

Classroom teachers and writers on principles of teaching may follow the lead of the psychologists themselves and attempt to use those psychological principles which sensibly serve the needs of teaching. Theoretical differences between the schools may be left to the psychologists for solution. We are not, however, merely to "take the best from each school" and combine them. This type of eclecticism is likely to result in a hodgepodge. The contributions accepted from the various schools must be parts of an emerging and increasingly coherent systematic core of principle.

The beginnings of mental life and learning. What happens first in consciousness? No one can ever know just what does appear first in the mental life of a baby. The original "buzzing, booming confusion" does, however, eventually differentiate into recognizable phenomena. The schools of psychology differ in their explanations. The associationists hold that the first items recognized are simple sensations, images, and affects. These elements are associated and connected as they occur together in time and space. Later, logical connections are recognized and constructed. The field-theory group believes that the earliest mental states

⁹ More will be said of this in Chapter 7.

are fields: general, over-all, non-localized experiences of hunger, warmth, pain.

Both schools agree that learning is the acquisition of responses which satisfy the needs of the individual which are socially desirable and useful. Marked differences arise in the explanations of how the learning takes place. Agreement on many details also occurs as noted above. The following paragraphs will summarize briefly and simply the chief contentions of the two groups. Detailed analysis of difference and agreement and of rebuttal between the schools is the proper concern of courses in psychology.

The connectionist laws of learning. The central doctrine is that of connection between stimulus and response. The associationists rely upon frequency, recency, vividness, similarity, and duration of the associative incidents and elements. The chief form of the connectionist theory is the S-R bond theory of Thorndike. Bonds or connections are formed between stimulus and response. The generally accepted laws of learning under this theory were formulated by Thorndike and are usually associated with his name. These are:

The Law of Exercise, or of use and disuse. This holds in brief that the more often a connection is exercised, the more firmly the connection becomes fixed.

The Law of Effect. Connections are strengthened or weakened as satisfaction or annoyance accompanies their use.

The Law of Readiness. When a bond is ready to act, the action gives satisfaction, not to act, annoyance. A bond not ready to act but made to act will give annoyance.

Five subsidiary or secondary laws are also noted: *multiple response; attitude, set, or disposition; partial activity; assimilation or analogy; associative shifting*. Most of these have been explained in previous chapters, though sometimes under different terms.

Research and argument concerning these laws have continued since their first pronouncement. Thorndike and his students have made additions and modifications from time to time: belongingness, impressiveness; polarity; identifiability; availability. Most of these refer to important characteristics of learning which should be identifiable from previous pages.

These laws and the psychology accompanying them have had profound and far-reaching effect upon the classroom procedures of untold numbers of teachers in this country. They are constantly under discussion; modifications and improvements take place, showing that the theory is dynamic and not static. The field-theory psychologists, naturally, do not accept them *in toto* and as stated any more than the connectionists accept the field-theory laws. A tendency toward unity is noted.

Field theory with particular reference to gestalt. The foregoing dis-

cussion of connectionist laws of learning was brief not because they are unimportant but because they are usually well known to experienced teachers and advanced students. They are easily grasped by beginners. The following discussion of field-theory laws will not only be longer but it must be preceded by some paragraphs descriptive of field theory in general. Field-theory psychology, particularly the gestalt version, is rapidly achieving influence among modern teachers even though it is not always clearly understood by them. The basic principles and the terminology are less widely disseminated than those of other schools. Courses in educational psychology preceding courses in principles of teaching present field-theory psychology far less often than they do the other theories. The writer, therefore, delays statement of the laws of learning until after a few paragraphs of descriptive and explanatory material.

Brief explanatory statement concerning field theory. Field theory is not new, having appeared in rudimentary form in scientific and literary writing for centuries. Support is derived from certain philosophic views, from the quantum and relativity theories in physics and mathematics, from semantics in language, and from logic and scientific method. The central notion is that of a field within which events occur and which gives meaning to the items or parts included within it. We are already more or less familiar with this concept in physics and astronomy. No one would attempt to explain gravitation or the tides through studying these phenomena alone. These items can be explained only through consideration of the total field or organization within which they occur. They can have no meaning whatever by themselves, in fact, cannot occur by themselves. They are phenomena of a field. The existence of certain planets was known long before they were actually discovered. Disturbances within the field of the solar system could be explained only by inferring extension of the field to include items later discovered to exist. The problem of juvenile delinquency can never be understood by looking at the delinquent alone. The situation within which the behavior takes place is the key. The field in biology is the living organism as indicated in the earlier pages of this chapter.

The field in psychology has, currently, three interpretations: organismic, gestalt, and topological. The organismic interpretation finds its basis and derived laws, as would be expected, in the biological concept of the living organism and its growth. Gestalt originates in and is based upon the analysis of perceptions which are regarded as primary wholes. The topological finds its wholes in child and group behavior. There is a definite tendency toward unity among the three interpretations, all of which are doubtless approaching the same central problem from different angles. The general laws of the field-theory process are exemplified in all three.

The gestalt adherents point out that colors are definitely affected by

the field within which they occur. Gray appears bluish on a yellow field. The apparent intensity of red or of green will be changed if either one is surrounded by a field of the other. We recognize melodies, places, persons, but are often unable to specify details, even the color of the eyes of a close friend. The parts must be specifically attended to, differentiated out of the field, to become known. Details are not necessary for recognition of the whole. Note, for instance, the difficulty witnesses have in describing to the police a burglar or hold-up man whom they can recognize immediately in a police line-up. The personality is a totality and is not recognized piece by piece.

An even simpler illustration is to ask what the word "bay" means. Meaning cannot be attributed until we have the total field in which the symbol occurs: a bay tree; a bay horse; a bay window (architectural); a bay window (anatomical); a bay in the hills, the bomb bay, gun bay, sick bay, the hound's bay; a bay of the ocean; a bay in the woods, a meadow; bay rum; to bring to bay, or fight at bay. The symbol "O" on the typewriter looks identical in *l*8*O**l*, *O**l*, *LOOK*, but the meaning differs because of the field within which each appears.

Competent scholars are applying the field-theory concept to world affairs. Wars, standards of living, tariffs, peace, stability, safety, divorce, transportation and exchange of goods, etc., etc., etc., can never be understood until treated on the basis of a world field. Blind nationalism is not merely outmoded, it is an absurd contradiction of known facts.

Briefly, field-theory psychology regards the field as primary. Meaning is given the parts (events, persons, processes) by the field within which they occur. Relativity is hence an important principle. Parts may be differentiated out of wholes and become smaller wholes with meanings of their own. These are transposable, i.e., there is transfer of learning. Reading must be done to supplement this presentation if students are not already familiar with the details.

The beginnings of mental life and learning under field theory. Mental life is held to begin, as does physical life and every behavior, with primary undifferentiated wholes (warmth, hunger, pain) out of which specialized forms are differentiated. The first recognizable experiences are possibly those of general lightness and darkness, followed eventually by recognition of fuzzy fields of differing degrees of brightness—window areas, for instance, differentiated from wall space. Naturally the baby has no meanings to go with these early ones. Later, large objects begin to be separated from the general undifferentiated field, but animate and inanimate objects are not for some time differentiated from each other. Eventually, the baby has actually to differentiate himself from the total field within which he lives.¹⁰ Whole persons, objects, events, processes are perceived. These wholes are primary; that is, they are not composed

¹⁰ Koffka, *op. cit.*, pp. 131 ff. This concept has also appeared for many years in all schools of psychology.

or built up out of simple elements. They exist in their own right. With experience, and as he matures, the learner differentiates the details (parts). These parts become wholes in their own right; and as learning proceeds, the learner becomes able to transpose these living wholes into new situations. Transfer is possible, as indicated in a previous chapter, if learning has been truly integrative. The function and meaning of parts is determined at any given time by the living whole within which they appear. This somewhat abstract statement will be clarified presently through illustrations from experimental studies and from common-sense observation. The increasing use in education of terms such as "frame of reference," "pattern," "structure," "configuration," and "gestalt" stem from the concepts just developed.

Illustration of individuation of parts from the whole. A few research studies¹¹ and many common-sense illustrations may be cited. Andrews shows that a small child soon learns to recognize the face of its mother and the faces of other members of the family.¹² He soon learns to recognize the picture of a face. He can point, on request, to the eyes, the ears, the nose, the mouth. If the child is shown a picture of an eye by itself, or of a nose, or of an ear, however, there is no recognition. The eye is called a bird's nest, an egg, or other similar item. The ear becomes a coil of rope; the mouth, a stairway; the nose, a tent or a mountain. It is a year or two later before the child has learned to recognize these items when shown separately, that is, out of relation to the functioning whole of which they are parts. Still later, children learn to differentiate kind, harsh, tired, young, old, pretty, ugly faces. Many similar studies are available. Individuals untrained in music recognize a melody without being able to identify a single one of the notes. Furthermore, if the arrangement of the notes is changed so that no one of the original parts reappears, the melody as a whole is still recognizable. Training enables us to differentiate out of a functioning whole, the various parts. Similarly, melodies are not made up by building one note upon another, but usually appear as incomplete and inadequate wholes. The composer then develops the parts in terms of the original whole. (See the discussion of insight in the paragraphs below.)

This basic principle of modern psychology has long been used as the basis of a parlor game. A member of the group stands behind a screen and through a small hole displays some one feature such as an eye, an ear, the mouth, two inches of cheek or brow. Intimate friends usually cannot identify the individual. Married couples are usually completely

¹¹ The studies of early mental life should have come to the attention of students in a course preceding this one. In case this is not true instructors and students may wish to make a brief excursion into that field at this point. Note special references in bibliography.

¹² Elizabeth A. Andrews, "The Development of Imagination in the Pre-School Child," *University of Iowa Studies*, 1930, Vol. 3, No. 4.

unable to identify each other's hands thrust through the screen. The whole can be identified easily but not the parts.

The discussion may be further clarified by a more typical everyday illustration. The following is borrowed from *Directing Learning* by Frederick, Ragsdale, and Salisbury¹³

In its development a child starts with meaningful units, both in its perception of objects and events and in its actions—that is the assumption basic to *differentiation* as a description of the developmental process. The meaningful unit may be logically very complex, and its complexity may be understood by a more mature person, as the teacher, but for the child it is *simple*. Its details have not yet appeared; its outlines are vague and indistinct; its relationships to other units are few; in short it is deficient in both individuality and internal organization.

A small child, for example, looks out the window and sees a *milk wagon* for the first time. The street, the houses across the street, trees, and all other objects in view are not separate and discrete but exist in a unified perceptual configuration which includes the milk wagon as a more or less central and prominent feature that is only vaguely separated from the rest of out-of-doors. Horse, driver, and wagon all blend into an undifferentiated unit. The child's responses (arm-waving, jumping up and down, pointing, vocalization, etc.) are a single, poorly organized unit, but cannot be regarded as a mere *collection* of these separate parts.

With additional opportunities to come into contact with milk wagons and the details included therein, both individuation and differentiation occur. First the whole unit becomes more sharply separated (individuated) from the general out-of-doors, then differentiation within the unit takes place. The horse is discovered to be a unit separable from the total, likewise the driver, the wagon, the milk bottles, the milk, the wheels, etc. This differentiation occurs only as the stimulating situation and the child's maturation favor it.

By the time the child has reached school age many such details may have been discovered, and their place in the total unit may have been worked out, but many of these sub-units, *milk* itself, for example, have probably undergone little further differentiation. Perhaps milk has been subdivided rather vaguely into cream, buttermilk, sour milk, sweet milk, etc. Under the guidance of a teacher other details, as butter fat, calcium, water, bacteria, etc., may be found. Furthermore, many possible systems of differentiation may be discovered, as weight, volume, atomic structure, bacteria content, chemical composition, etc.

As each new detail appears, it retains its *membership-character* as a part of the large unit which thus becomes more and more complex in its internal organization. Regarded as differentiation, learning is the process of discovering complexity in the thing at first perceived as unitary.

Field-theory principles of learning. The technical language in which field-theory concepts of mental life and learning were first stated was borrowed from the technical studies in biology and physics. The words were new and confusing to students of education. The aim of the present volume has been to develop in the students, understandings based upon their own very limited experience before introducing the technical statements. This was true also in lesser degree for the laws of learning as stated by other schools of psychology. It is significant that the recent

¹³ *Op. cit.*, p. 39

presentations, particularly of gestalt psychology, make less use of the strictly technical language. Young and immature students will doubtless do better with such treatment. The technical language should, however, be known to the student. Previous chapters will have prepared the student, it is hoped, for simple understandings.

The wording which follows is borrowed from Wheeler and Perkins, who present the organismic type of field-theory psychology; but, as stated earlier, the general laws apply to the three versions.¹⁴

The *Law of Field Genesis* states that wholes evolve as wholes and are primary. The *Law of Derived Properties* and the *Law of Determined Action* hold that the meanings and the behavior of the parts are determined by the wholes within which they occur.

The *Law of Field Properties* holds that the whole is more than the sum of the parts and that the properties of the field are not the same as the sum of the properties of the parts.

The *Law of Individuation* holds that parts come to have existence through the process of individuation, or differentiation, or structurization.

The *Law of Configuration* holds that a system of energy always functions as a unit and is able to adjust itself to a number of disturbing factors.

The *Law of Least Action* states that the organism or energy system will take the most direct route to the relief of tension or the restoration of equilibrium.

The *Law of Maximum Work* states that the organism or energy system will exert maximum effort to relieve tension or restore equilibrium.

Field-theory psychologists make much use of the terms: initial delay, insight, and pacing. Explanations are given a few paragraphs below. The terms readiness and trial-and-error learning are interpreted differently from the older schools. All groups agree in the main on the use of such terms as: goal, purpose or motive, learning by wholes or modified wholes, rhythm or distribution of work periods, transfer.

The immediate implications of the general laws. Field-theory psychologists differ with the connectionists in holding that learning is not additive. Understandings, concepts, beliefs, attitudes, and skills are not achieved by adding fact to fact, item to item to item, until a rational whole has been built up. Skills, whether in writing, swimming, or in getting along with persons, are not achieved by drilling upon isolated parts which will later be put together to constitute a perfected ability. On the contrary, learning proceeds first through perceiving a living whole, whatever it is and even though imperfectly, which is

¹⁴ Wheeler and Perkins, *op. cit.* Chapter 2 contains an excellent detailed summary of the laws. Pages 370-383 contain interpretation of these laws in terms of learning. Latter discussion is somewhat too abstract to be of immediate use to teachers.

George W. Hartmann, *Educational Psychology* (New York, American Book Co., 1941). A comprehensive attempt to develop a volume on educational psychology from the gestalt point of view. Practical and useful.

National Society for the Study of Education, "The Psychology of Learning," *Forty-first Yearbook*, Part II, Chap. 5, pp. 165-183. Contains a good straightforward statement. Easily read and understood, supplies much material quickly. Advanced students may wish to examine Chapter 6 also.

important to the learner's purposes. Progressive differentiation of the components not only gives smaller wholes but contributes to understanding of the larger whole. Instead of proceeding from simple to complex, as has been said for centuries, learning begins with a complex unit which becomes simpler as better understood. The primary patterns are progressively differentiated into all manner of knowledges and skills.

Transfer of training or transposition is facilitated when knowledges and skills are differentiated out of whole situations as indicated. The learner sees the placement and usefulness of the item and can use it independently. Understandings "learned" in isolation from real situations are usually empty verbalisms; skills are usually faulty, soon lost, and rarely transferred.

Stating all this another way, the field-theory psychologist believes it to be absurd to teach facts out of relation to the situation in which they occur, skills in isolation from use. No item should be considered without reference to the total situation. A natural corollary is the increasing emphasis in teaching upon "wholes," that is, upon unitary organizations of subject matter and learning experiences, with decreasing emphasis upon fragmentary assign-study-recite sequences. This movement is of particular importance in the elementary schools where it will likely dominate before long. The secondary school will utilize it in the rapidly expanding "core" curriculum. By mature learners, specialized study of isolated items abstracted from a field of specialization can proceed under definite assignment and study.

Illustrations from actual school practice are scattered through the volume, particularly in Chapter 4. All the violations of continuity and interaction, and the improvements in using those principles are cases in point. One or two more may be cited here. The modern practice of teaching vernacular language skills which begins by encouraging children to express themselves, no matter how crudely, is sound. Out of the efforts to make something clear in situations important to the child, need will arise for better skills, grammatical rules, rhetorical forms. The pupil sees this for himself and does not meet it as a demand from outside which he cannot understand. These things emerge (are differentiated) from a sensible whole. To begin with grammar is to reverse the order and violates all we know about learning. (Learning a foreign language by interested, mature adults does not necessarily follow the pattern used by young children learning their vernacular.) Studying literary works whether Shakespeare's plays, Shelley's poetry, or Dickens' novels through piecemeal analysis without reference to the wholeness of the work and the setting from which it grew is not merely a waste of time; undesirable learning outcomes are inevitable.

Reading long ago abandoned the method of beginning with the *a-b-c's* and letter-combination charts. Whole thoughts interesting to and understandable by the learner are now used. The details of the total

structure emerge with experience and teaching. In fact, the story of the progressive revolution in the teaching of reading over the past quarter century is one of the most vivid and enlightening accounts of the application of modern psychology to education. It is not to be overlooked that once the child has a store of meanings through which he can and does differentiate parts, that these parts can in turn be used as aids in understanding new wholes. After the child has met in functional situations a number of words with the same root or the same prefix or the same suffix, the structure of the word can be called to his attention.

The same general shift from so-called elements from which wholes are to be built to wholes from which elements are to be differentiated is to be seen in the teaching of arithmetic, writing, and art. The older practice in art, and music as well, of insisting on the precise copying of models or pictures by young children is one of the most reprehensible still to be found in the classroom.

Further discussion of subsidiary principles and their implications. A brief exposition of one or two other commonly used terms will aid students and teachers. These terms, as well as those used by connectionists, are frankly descriptive and not explanatory.

Insight. The technical meaning of this term is not too far removed from the common-sense meaning of seeing into, understanding, apprehending a problem, process, or situation. Foresight is insight at its very best. Even hindsight is a form of insight, though a belated form. The feminine intuition and the masculine hunch actually refer to insight, though the ordinary user of those terms does not understand what has happened in his own mind. The elements of mystery or of "sudden" revelation bulk large with the average citizen. Insight, to the psychologist, is not mysterious or occult; it means a better grasp or understanding of the problem or situation, gained, however, before complete experience with that problem or situation. As insight is gained into the situation, new responses which are appropriate, appear in the course of learning, that is, which carry the learner further toward his goal. Furthermore, learnings are transposed from other situations because insight enables the learner to recognize the applicability of older learning to the new situation. Using terms already developed in this chapter insight means achieving a better understanding of the total pattern, the whole problem to be solved, the total skill to be acquired. Insight enables the learner to adapt, to discover, or to invent appropriate responses more easily. Insight is seeing what is to be done and how to do it. The field-theory psychologists have developed considerable research background which they believe supports their meaning of insight.¹⁵

The field-theory psychologists hold that understandings, attitudes, and

¹⁵ William F. Bruce, and Frank S. Freeman, *Development and Learning* (Boston, Houghton Mifflin Co., 1942), Chap. 15, and see also index.

George W. Hartmann, *Gestalt Psychology*, Chap. 12. An excellent summary of experiments.

meanings are first achieved through insight and later clarified through further experiences and applications. Skills first learned through insight are then perfected through practice or drill. Referring again to walking, we note that the baby walks, that is, operates, however imperfectly, as an integrated pattern. Practice develops skill in the thing already functioning as a whole. Swimming is perhaps a better illustration. The learner flounders around in the first stages. He knows what he wants to do, but he does not know it clearly. The pattern is vague and general. As insight develops, there comes a point at which the individual can swim. Clumsy and uneconomical as it may be, it is swimming. The learner has caught the characteristic structure and can perform the necessary movements. Skill is then achieved through practice. Rapid learning in the later stages of achieving a skill is often owing to the fact that excellent insight has been obtained earlier. Any adult who has learned golf will recognize very easily the place of insight in achieving the necessary complex motor coordinations. One amateur golfer of the writer's acquaintance took nearly one stroke per hole (he had plenty of room) off his score after overhearing a chance remark by a golf professional. The remark opened up a whole new insight into the nature of the pattern he was trying to achieve. Incidentally, this little incident illustrates clearly the place of the teacher in aiding the pupils to achieve insight.

Initial delay. Field-theory psychology recognizes a period of partial or seemingly complete inaction at first and at important points within any prolonged activity. We often hear children and adults say, when they are trying to do something, that they must first "get the hang of the thing," "get the feel of it." Reversing this, we often hear persons say that they are "not getting anywhere." This means that they cannot see what to do or how to do it. Parents and teachers often mistake this for dullness or inattention, and sometimes it is. Field-theory psychologists recognize a period of initial delay and attribute it to the necessity for first developing some insight into the problem.

Pacing. If the level of difficulty of the new learning could be *perfectly matched* with the maturity level of the learner, then learning would take place on the first effort, say the gestalt psychologists. Since this theoretically perfect condition will not likely be achieved in many instances, particularly with heterogeneous groups of learners, the teacher will endeavor to adjust learning situations as closely as possible to maturation and background. This is called *pacing*. The more closely the tasks of the school approximate the readiness of the learner, the faster learning through insight will take place. Pacing, properly done, aids the steady, regular development of intelligence and learning.

Learning situations which are beyond the maturation and experience

—, *Educational Psychology*. Use the index.

Each of these three references summarizes a large number of individual research studies. These are fully footnoted, hence individual references are not repeated here.

level of the child, that is, which are "too hard," antagonize and discourage the learner. Since he can have no insight, and since he cannot actually learn in such situations, he resorts at first to blind fumbling. Eventually, he will resort to cheating and lying. The habit of failure is built up together with very undesirable attitudes and habits of work. The pupil eventually refuses to try and reverts to simpler methods of response which he knows but which will not meet the situation. Parents and teachers who believe that children should be "forced to do hard and difficult things whether they like it or not" are not merely talking innocent nonsense, they are actually stultifying the intelligence of the learner and building up serious personality and character problems for the future. Problems and skills to be achieved must often be reduced to the learner's level of maturity, otherwise they are "too hard." The pupil actually cannot learn. He is not stupid or obtuse as many teachers think. Of course care must be taken to see that lazy or indifferent learners are not avoiding tasks which actually can be achieved.

Learning situations which are below the maturation level of the learner likewise antagonize pupils. Bright children are especially bored and contemptuous of the teacher and of the school. They acquire habits of loafing, half trying, and being satisfied with mediocre results. Sometimes, individual children of brilliance are so antagonized by the drivel in some beginning readers that they refuse to react. They are then classified as poor readers, in a few cases actually as non-readers in school, but are found to be reading quite difficult material outside of school. Hence, problems and skills to be learned must often be raised to the level of pupil maturity.

Pacing, to repeat, is the effort to give the learners opportunities to attack situations which increase in complexity in relation to their increasing experience. Learning situations must be difficult enough seriously to challenge the learner but at the same time be susceptible to solution. They must not be so easy that they do not challenge.

Insight and learning are, of course, not merely a matter of adjusting the situation to maturity. The teacher has important things to do within these learning situations. Illustrations are given throughout the volume.

*Readiness.*¹⁶ A pedagogical principle, based on the foregoing psychological facts, which has had much discussion is that of *readiness*. It is the pedagogical counterpart, so to speak, of maturation but includes social and intellectual maturity as well. That is, we say that at a certain time a child is ready to read, ready for formal arithmetic, ready for the development of time sense in history, ready to participate in group activity, and so forth. His physical and neurological maturity and his

¹⁶ The general current use of the term "readiness" is not to be confused with the special use made by the connectionists which refers to the readiness of neurological bonds to act.

experiential background are such that he could read, could do abstract arithmetic, could get along with other children coöperatively—if the situation arose which demanded these things.

This important principle is easily misinterpreted. We are led to think of "readiness" as a definite locus or condition. This leads to three subsidiary errors: (a) neglect of the genetic development of any power, skill, or understanding; (b) waiting for the given condition of readiness to appear of itself; (c) assuming without investigation that readiness must be present.

In regard to (a) we know that growth is a steady, on-going process. The designation of any given point in the developmental sequence as readiness for the given learning must be largely arbitrary. The (b) type of error may cause teachers to overlook the value of stimulation, opportunity, and try-out, thus unduly delaying a given learning. The (c) error may result in too early stimulation and forcing because readiness is deemed to have been attained. This results in frustration and in formal attempts to bring on or induce readiness.

An analysis in terms of learning to read will illustrate these points. Traditional primary teachers usually think of reading in but one way, namely, the interpretation of printed materials. Readiness then is the stage at which children are able to do this. Formal standard tests of reading encourage this view as do the naive conceptions of reading held by parents and the public generally. Such a view causes parents and teachers to overlook the importance of a long series of preliminary developments which are all a part of developing reading attitudes and abilities. These are the opening and handling of books, looking at pictures (often upside down in the case of babies!), turning pages, identifying known objects in pictures by pointing, by using syllables, parts of words, single words to indicate recognition or enjoyment. Later, the child says "tell me what it says," and "what is this picture about." He identifies pictures with appropriate stories; he recognizes and identifies letters and words. High-school teachers making the same error as the primary teachers fail to recognize that reading includes critical thinking and evaluation of what is read, discovering relationships, detecting illogical statements, anachronisms and the like, drawing inferences, locating materials, deriving summaries from various sources, and many others. Secondary-school and college teachers who blame elementary teachers for failure to teach children to read often betray their own ignorance of what constitutes reading. The teaching of reading is rapidly becoming a standard part of the high-school and college curriculum and properly so.¹⁷ Thus we see that it may be better to speak of a succession of readi-

¹⁷ For an amusing and very stimulating discussion of this see H. R. Huse, *The Illiteracy of the Literate* (New York, D. Appleton-Century Co., 1933), see also Joseph Jastrow, *The Betrayal of Intelligence* (New York, Greenberg, Publisher, 1938). Also note the increasing number of research studies and textbooks for high-school and college reading.

nesses than of readiness. Some writers are advocating that the term be abandoned. These authorities would direct attention to the genetic sequence or continuous growth.

Simply waiting for readiness to appear may quite seriously delay reading or ability to compute, or ability to get along with other children, etc. Opportunity and encouragement are important. Assuming on the other hand that readiness must be present because a certain age has been reached often results in attempts to force learning in advance of maturation. Failing to secure results at an arbitrarily assumed point of readiness, teachers often resort to formal programs designed to bring about readiness.

The foregoing analysis can be duplicated for arithmetic, language skills, participation in group discussion, learning to write legibly, to swim, to take girls to parties.

Disregarding for the moment differing interpretations, we may note that discussions of readiness have profoundly affected education in recent years. Important changes have taken place in the teaching of reading, in the placement and teaching of arithmetic and language skills and grammar to mention but a few of the prominent illustrations. Parents are often disturbed because modern schools delay formal arithmetic until third grade or later. Children in these schools do make lower scores on standard tests than those in traditional schools. Parents, and many teachers, do not know that "passing standard tests" is often pseudo-learning which does not function in real situations. Given a rich program of functional experience with number in primary grades, these same children will later equal or surpass the children in traditional schools both in skills and application. This is not only demonstrated by evidence but is to be expected from the facts of growth. As a matter of fact, practically everything that is part of general education should be appearing at all levels from babyhood onward but in situations and to that degree of difficulty which are in keeping with the maturity of the individual concerned.

Regardless of differences of interpretation, a very important point is involved, namely, *when* to introduce certain learning experiences. The problem is one of balance or pacing. The only way we can tell whether a state of readiness has been achieved is to give learners the opportunities to learn and then watch what happens. The concept of a series of readinesses is probably safer than the concept of a fixed locus for readiness. Guided by the learners' reactions we can adjust to readiness or—if it is preferred—to growth.

Again we see the necessity of constant pre-testing, of knowing intimately the pupil's previous experience, his interests and hobbies, his attitudes, the attitudes of the home, his aptitudes, his physical health, his mental hygiene, etc. Without adequate knowledge about learners,

teachers will often frustrate and antagonize learners through maladjustment to readiness.

Trial and error versus re-trial. The older psychology held that new responses appeared as elements in a "trial-and-error" process. The general sequence was something like this: The learner (a) has a goal, set, or purpose, but (b) does not see clearly how to achieve it. He (c) explores the situation, (d) somehow finding various ways to reach his goal. He may discover these by blind trial or by analysis. There is (e) the trial of these leads, and (f) dropping those which do not work, accepting those which do, until (g) a successful response leads to the goal. The process is not sequential, as has been made clear before. Correct responses, it is held, arise out of blind, fumbling trials. Insight and understanding are not precluded since they could occur in (d) above. Correct responses are seized and retained through the operation of the laws of exercise and effect.

The field-theory group maintains that responses are never repeated exactly. They believe also that blind trial and error could continue forever in some instances without producing a correct response. They believe the stimulus-situation is repeated and that each effort of the learner is a re-trial of a pattern discerned more or less clearly. The learner does not fumble or try blindly, he tries consciously to achieve a result he can perceive or understand. Incorrect responses then become not errors in the trial-and-error sense but incorrect responses due to imperfect insight. Initial delay allows for study and analysis; guidance from outside aids; the repeated trials themselves are valuable instruments of further insight. The learner deliberately evolves and tries new procedures as he gains insight or transposes and adapts known methods.

A reasonable summary would seem to be about as follows. True trial and error will undoubtedly occur when tasks are too far beyond the maturity and experience of the learner. The greater the adjustment between task and learner, the greater the reduction of waste in time and energy. Where tasks are well adjusted to maturity and experience but still challenging, insight with intelligent trials may substitute for trial and error. Certain writers contrast "blind" trial and error with "seeing" re-trial.

The educational implications are important. The traditional curriculum and method of teaching continually place learners in situations where they do not know what to do, where to turn, or why. Blind trial and error is natural and inevitable. This can be observed constantly in high-school and college learning. Situations sometimes develop with adults in industry where the development of a special skill must be attempted at once without sufficient preliminary acquaintance. Trial and error is the only way open to these learners at first. The teacher who sets up situations which demand trial-and-error learning and then con-

demns children for stupidity is in serious error. Trial and error must be accepted as natural. The teacher's efforts will be directed at sympathetic explanations, guidance, and the giving of devices which may not at first be understood by the learner. The teacher's goal is the increasing ability of the learner to understand the task and take over self-analysis and self-guidance. With situations in which adjustment between learner and task is very poor, this result is not possible; unthinking performance of the skill or operation of given formulas is all that can be attained.

The modern teacher attempts to adjust task to learner but to retain enough of the unknown and of a difficulty sufficient to challenge the learner. Initial delay, preliminary observation and discussion, tentative trial, self-guidance, and participatory guidance by the teacher are all then accepted as natural. Guidance here will be within the learner's own processes and in terms of his level of insight.

Trial and error of the traditional type may also occur because of inattention, obtuseness, poor physical condition resulting in lack of effort. This would also be true of failure to attain insight. Teachers should not jump to the conclusion that inattention is the cause, but should make diagnosis of the situation. Guidance and re-direction should then be appropriate to the discovered situation.

SECTION 2

THE CONTRIBUTION TO LEARNING OF HEREDITY AND OF ENVIRONMENT

Heredity and environment. A few years ago this heading would have been "heredity *versus* environment." Today competently informed individuals do not wrangle over the relative importance of the two. Preceding pages have made clear the reciprocal, not the rival, nature of the two. Each is one aspect of a dynamic, unitary process, namely interaction. The individual brings to the situation his organismic pattern of growth potentials, of capacities. The environment supplies situations in which the growth potentials are expressed. Interaction results in learning.

The important fact to know is that heredity and environment are each important. The human animal is born *with* a physical inheritance; born *into* a social heritage. The latter is but one part of the environment. The inherited potentials are not automatic nor specific in function. They are general and capable of development into thousands of actualities through interaction with the environment. Heredity sets some limits as to what an individual *can* do and the environment determines in some measure what he *will* do and be.

Students studying this text should have long ago met modern discussions of heredity and environment in the biological sciences, in psychology, in anthropology, in survey courses, or elsewhere. If they have not they have no business in a course in principles of teaching. It is sim-

ply not safe to enter upon teaching without knowledge of the enormous amount of material available on this ancient topic.¹⁸

Heredity and learning. Individuals obviously inherit certain anatomical traits common to the species; skeletal structure, neuro-muscular system, bodily organs, etc. Certain physiological functions are present from birth: digestion, elimination, breathing, oxygenation of the blood, etc. The individual inherits a functioning organismic pattern plus the capacity and tendency to maintain integration, physical and mental health. Susceptibility to disease and to mental disturbances is present in potential. We are chary of going further. Reflexes and instincts once thought to be wholly inherited are now known to be largely if not wholly genetic. Some research indicates the primacy of certain limited instinctive reactions of fear, rage, pleasure.

For our purposes we may concentrate upon the fact that we inherit an unbelievably plastic nervous system capable of almost any organization (learning). Plasticity is far more important than any possible fixed inherited items. All human beings are born with some capacity to learn. The capacity differs from individual to individual. When parents or teachers say that a given child cannot learn they mean they have been unable to stimulate that child to learn. It simply cannot be true that a child cannot learn. The fault lies with other persons or with the environment. All of the faults of improper pacing, the violations of readiness, are cases in point here. In properly organized teaching-learning settings all normal persons learn. They cannot help it. Individuals sometimes will not learn, and it is then said they cannot learn. The two situations are not the same.

Certain misconceptions about heredity with special reference to education. Everyone has heard the ancient cliché which so often beclouds human thinking and befuddles education and child-rearing: "You can't change human nature." "Human nature doesn't change." The truth is that, properly understood the only unchangeable thing about human nature is its changeability! Human nature is *acquired* nature. It changes constantly. If this were not so, cultural progress would be impossible, institutions could not evolve, behavior could not be controlled, and education would be a waste of time. Untold misery has been caused by stupid beliefs that greed and selfishness are ineradicable because part of "human nature." Generosity, altruism, and coöperation are just as much inherited as the first-named items. Human nature is unchangeable only in the sense that the primitive drives of self-preservation, relief of hunger and thirst, of reproduction of the race, and one or two others

¹⁸ For quick preliminary summary the following may be used here.

William H. Burton, *Introduction to Education* (New York, D Appleton-Century Co., 1934), Chap. 18, particularly pp. 465-469. Note footnote references to further materials if needed.

William F. Bruce, and Frank S. Freeman, *Development and Learning* (Boston, Houghton Mifflin Co., 1942), Chap. 2, particularly pp. 19-29. Overlaps with other items.

are always present. The specific ways in which these operate and the personal-social-moral traits which develop are changeable from civilization to civilization and widely within given civilizations. The central problem of education is the changing of *original, animal* nature into *human, civilized* nature.

The cliché referred to is used to excuse certain deplorable conditions existing in the world, not merely in education and child-rearing but in the areas of juvenile delinquency, crime, political malfeasance, economics, and many others. The verbalism obscures the facts and prevents intelligent effort to bring about better conditions.

The school and the home often blame heredity for certain undesirable attitudes and behaviors manifested by children. Parents and teacher are thus actually advertising their ignorance of the facts and demonstrating their own inability to cope with the situations in point. It is admittedly an extremely difficult problem demanding diagnosis and remedial work by expertly informed individuals. As long as we blame the matter on heredity we effectively prevent intelligent analysis and cure. A number of specific illustrations is summarized herewith:

1. A child is not born with a tendency to be troublesome at home or in school; nor with a tendency to adjust with docility to the requirements of home or school ¹⁰
2. A child is not born with a tendency to be lazy in school; nor with a tendency to work persistently and continuously.
3. A child is not born with a tendency to be interested or uninterested in certain subjects.

Inheritance can have nothing to do with these items. Each is learned as a product of interaction with conditions surrounding the child. The attitude the learner builds up as he grows is particularly important as a cause of the behaviors listed. To be sure the inherited reaction time, that is, degree of sensitivity of the nervous system, the presence of certain congenital variations from normal physical structure, and the like, may be predisposing causes but in the main, and certainly with normal persons, learning is the significant factor.

Troublesome, lazy, uninterested pupils are products of homes, general cultural environments, and systems of education which do not satisfy the purposes of those pupils, which place pupils in situations maladjusted to their levels of maturity and to their aptitudes. Coöperative, persistent, interested pupils are products of educational situations adjusted to the purposes and growth of those pupils.

4. A child is not born with a tendency to be morally or socially good or bad; nor with a tendency toward either a good or a bad character.

¹⁰ The writer gratefully acknowledges his indebtedness for the general summary in these paragraphs to a clever discussion by L. Thomas Hopkins in *Interaction* (Boston, D. C. Heath and Co., 1941), pages 147-152. The ideas briefly noted here will be considered again in more detail in Chapter 22 on discipline.

5. A child is not born with a tendency to develop desirable or undesirable personal-social-moral traits.

Moral standards are not transmitted through the chromosomes! They are learned. Goodness and morality even differ from culture to culture and within a culture. Our society is no exception to the latter difficulty. It is a peculiarly difficult task to teach for good moral behavior in home and school within a civilization which contains so many powerful influences contrary to that moral teaching.²⁰ The correction of bad social or moral behavior which is already established is actually far too difficult for most parents and teachers at present levels of insight and training. Society acknowledges its incompetence by locking up offenders. The school blames its difficulties on heredity. This obscures the facts and again prevents intelligent attack on the actual causes.

6. A child is not born with a tendency toward a particular life occupation.

We hear of born teachers, born orators, born ministers of the Gospel. These "born" practitioners are usually adept without training. It is significant that none of us would submit to an operation by a "born" (untrained) surgeon. We do not hear of born engineers, born architects, born boilermakers, or born research psychologists. The fields in which "born" experts appear are usually those in which verbalism and personality will carry the person along and in which results are not immediate and objective. The truth is that even in these fields the "born" practitioner is a nuisance and a blocker of progress. In fields where expertly trained skill is obviously necessary we hear no nonsense about born experts.

Inheritance conditions in a very general way one's choice of a given vocation. The actual decision is preponderantly affected by immediate conditions at the time of selection and by continuing conditions previous to selection.

Limited learning capacity does of course prevent certain individuals entering upon occupations demanding subtle insights, certain mental skills, etc. But within the level open to such individuals heredity does not dictate the specific choice made. Various levels of stability in the nervous system, various differences in the endocrine glands may influence individuals toward or away from certain general types of life work. Choice within the levels or types is made on other grounds.

The foregoing six points are often involved in excuses advanced by parents and teachers who are incapable of handling children. Fortunately in education many competent teachers and educational leaders are engaged in basic, far-reaching reorganizations of the curriculum and of instructional methods designed to meet the situations involved.

Maturation. The term maturation refers to the natural process of

²⁰ Recall in this connection, however, the discussion of "persistent" truths and standards in Chapter 3.

growing, developing, ripening. It has long been used by physiologists, anatomists, and neurologists to refer to observable changes in cells, nerves, muscles, bones, and organs. The progress of physiological maturation can be observed through laboratory dissection and X-ray photography. For instance it was discovered long ago that the progressive myelination or sheathing of certain portions of the nervous system coincided with the ability of those nerve fibers to function. The progressive ossification of wrist bones in children has been photographed to provide another scale of progressive maturation. Various physical maturities are recognized, based on measurements of different items. The term is also widely used to refer to other forms of growth than the physical, for instance, mental maturity, social maturity, emotional maturity, etc.

Students in this field have borrowed the basic concept of development, namely "age," and distinguish several "ages," each an index of growth in its field. Commonly used in education are:

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| 1. Chronological age | 4. Anatomical age (sometimes dental or carpal ages) |
| 2. Mental age | 5. Physiological age |
| 3. Educational age (sometimes called subject age or grade level) | 6. Social age |
| | 7. Moral age |
| | 8. Emotional age |

These are commonly designated by their initials, C.A., M.A., E.A., etc. Each has its own methods and units of measurement, and norms. Chronological age, the commonest in everyday discussion is obviously the number of years and months since birth—one's age in the ordinary sense. Mental age represents the stage of mental development irrespective of chronological age. Educational age represents the grade reached in school as indicated by scores on standard tests. Grade level is often translated into corresponding average age. Anatomical age is based on measurement of certain anatomical features, for instance ossification of wrist bones, eruption of teeth, and the like. Physiological age usually refers to the maturing of the sex organs and functions, though it may refer to any bodily organ. The social, moral, and religious ages are determined by inventories of habits and attitudes. If typical behaviors can be determined for average ages, the inventory for a given child could be translated into an age designation. In passing, the caution must be expressed that averages, norms, and ages of this type are often sadly misleading when applied to individual cases. The fundamental principle that growth is individual and patterned is more important than identification by age levels. Descriptive standards could be set up for emotional age, aesthetic age, sports-and-games age, etc.

There is reasonable consistency and correlation between the ages in a given individual, though the growth studies show that variations are frequent enough to be important. A boy may be thirteen years old

chronologically, eight mentally, seven educationally and ten anatomically or physiologically. Another may be eleven chronologically but have a mental age of fourteen with correspondingly accelerated educational age.

Maturation is affected by general environmental influences. The individual possesses a growth potential. It will mature willy-nilly. This process is called maturation. The physical organism and the simple behaviors develop thus. However, outside influences can and do affect maturation at any stage, and become particularly important in later development. This is particularly true of mental and social maturities.

The system of education, the methods of teaching, the type of curriculum, the training and personalities of the teachers, the attitude of the parents, the security within the home, placement of a given child within the family sequence, the size of the child in relation to other children in the neighborhood, the type of neighborhood, the socio-economic status of the family, type of housing, nutrition, climate, illness, play, and thousands of other factors all affect growth for good or ill.

Formal education is itself the process of stimulating, guiding, directing development. It must be done with due regard to the maturation pattern and the conditioning power of outside factors. Schools, particularly the traditional type, have often been guilty of interfering with the growth of learners, particularly the brighter ones. On the other hand many schools and parents have caused individuals to rise far beyond what might have been expected.

Development in part natural, in part guided from outside. Preceding pages have indicated many times that the development and learning of individuals are *in part* an inevitable and natural process and *in part* are stimulated and directed by outside influences of many and varied types. The first factor is often obscured when we speak of "learning" to walk, "learning" to think, etc. Individuals will walk, think, imagine, develop ideas in any event; the second factor is often obscured when we speak of or explain certain acts, beliefs, and attitudes as "instinctive" or "inherited." Very few items are pure inheritances, very few pure acquisitions. Growth, development, learning, result from the interaction of the growth potential, or maturation, and outside influences. Prominent among the outside influences is organized education. Education does not cause growth, but stimulates and directs it. Teaching is an effort to see that behavior resulting inevitably from maturation is socially desirable behavior.

Caution concerning balance between the two factors. Disregard for or ignorance of the weight of either of the factors has resulted in some curious educational perversions. The older educational theorists, influenced by erroneous beliefs concerning the nature of the individual and his growth, spoke and acted as if desirable learning could come only

through control, domination, even harsh repression of natural growth. The entire burden was placed upon outside influences, often of a repressive or coercive nature. This defiance of natural maturation of individuals has been one important cause of many absurdities in traditional education, not to mention the stultification and unhappiness of the learners. It is wholly impossible to stimulate and guide growth and learning without due regard for the unique organismic pattern of each given individual. Many teaching procedures now widely used by experienced teachers must and actually do fail (even though the teacher is wholly unaware of her failure) because these procedures operate in direct defiance of the nature of the organism. Many classroom methods produce results which would astound the teacher if she only knew what was happening within the organism she is teaching! The results the teacher sees and accepts are often but a small and misleading part of the total reaction of the learning organism.

Extremists among modern educators, impressed by the revelations of research into the nature of growth, organismic patterns, and the like, fled to the opposite extreme. Many spoke and acted as if natural inevitable growth was, automatically, desirable growth. Environmental factors were seen as artificial, often arbitrary, interferences with an otherwise wholesome process. Remove controls and interferences, and learning will take place. The entire burden is here placed upon innate growth processes and patterns. It is, however, wholly impossible to stimulate and guide growth without due regard for the important effects of scores of environmental factors. Again as stated in the previous paragraph, teachers would be astounded if they but knew the results being achieved because of their neglect of sound use of outside factors. Defiance of the necessities of guidance and outside influence was responsible for many of the nonsensical perversions of the otherwise sound early "activity" programs, and for the early ridicule of progressive education. This was the era when it was said by the lay public that modern education "let the children do what they pleased" and that drill had been abandoned. These errors were the work of superficial individuals and were never advocated by responsible leaders.

The trained educator of today avoids these extremes. The modern, progressive school is organized so far as is humanly possible to bring the natural, unique pattern of individual growth into functioning interaction with a rich, varied, dynamic, and stimulating environment. To repeat, modern teaching is the encouragement and guidance of natural growth in accord with socially desirable ends as determined by the given society. Neither one of these two factors can be safely subordinated to the other.

Illustrations of physiological maturation with outside influence relatively ineffectual. The relationship between maturation of the nervous system and the development of correlative behavior is shown in one of

Coghill's experiments.²¹ Embryos of frogs and salamanders were placed in anesthetic solution long before any signs of behavior were noted. The drug prevented movement but not the natural growth or maturation process. When these drugged and hence inactive animals, had grown to the stage at which naturally developed animals were able to swim and move about they were placed in water. When the drug wore off these animals swam and moved about practically as well as the others. The uncritical observer might say that the normal animals had "learned" to swim but the experiment shows clearly that animals with no chance to learn or to move at all were able to swim when put into the water. Maturation was the dominant factor. Coghill shows that the growth of about 1/100 of a millimeter in the axones and dendrites changed salamanders from helpless passive organisms into active exploring animals.

A number of experiments have been made in which chicks were kept from pecking for some days after hatching. It was shown clearly that the pecking action resulted partly from maturation, partly from practice. Chicks kept hooded for several days pecked imperfectly but better than newly hatched chicks, and achieved more quickly the same accuracy as those which had had several days' practice. Many similar experiments are available.²²

The growth curves of human beings during adolescence supply another excellent illustration. Modern growth studies show that there is a distinct spurt in physical growth at adolescence, preceded by a period of slower growth, and followed by a similar period of decelerating growth. While individuals differ in the onset and close of these periods and in the amount of growth, the pattern is unmistakable and is reported in all recent studies. Here we have a clear case of maturation.

Incidentally we may note that G. Stanley Hall long ago discussed the adolescent spurt and its relation to education. Then the early statistical studies seemed to prove that there was no such periodic increase. These

²¹ G. E. Coghill, "The Early Development of Behavior in Amblystoma and Man," *Archives of Neurology and Psychiatry*, Vol. 21 (1929), pp. 989-1009.

²² F. S. Bied and J. F. Shephard, "Maturation and Use in the Development of an Instinct," *Journal of Animal Behavior*, Vol. 3 (1913), pp. 271-285.

Charles Bud, "The Relative Importance of Maturation and Habit in Development of an Instinct," *Pedagogical Seminary*, Vol. 32 (March, 1925), pp. 68-91, Vol. 33 (June, 1926), pp. 212-234.

Leonard Carmichael, "The Development of Behavior in Vertebrates Experimentally Removed from the Influence of External Stimulation," *Psychological Review*, Vol. 33 (January, 1926), pp. 51-58. Also see *ibid.*, Vol. 34 (January, 1927), pp. 34-47; Vol. 35 (May, 1928), pp. 253-260.

W. E. Ritter, *The Natural History of Our Conduct* (New York, Harcourt, Brace & Co., 1927).

H. C. Tracy, "The Development of Motility and Behavior Reactions in the Toad-fish," *Journal of Comparative Neurology*, Vol. 40 (April, 1926), pp. 253-357.

G. E. Coghill, *Anatomy and the Problem of Behavior*.

—, "Integration and Motivation of Behavior," *Journal of Genetic Psychology*, Vol. 48 (1936), pp. 3-19.

studies were cross-sectional and the statistical treatment smoothed the growth curves to conceal the facts. Modern growth studies are longitudinal and show the spurt clearly.

Increasing effect of environmental influences in human development. Criticism has attached to some psychologists because of their reliance on animal experimentation in the interpretation of human behavior. Some cross inferences are possible since, as Aristotle hinted long ago, there are some striking biological similarities between frogs and philosophers. However, because of differences in the situation under which evidence is derived there is danger of error, particularly with reference to complex behavior.

Experimentation and dissection of the type used on animals naturally cannot be used on human subjects. However, wide use has been made of human subjects suffering from brain lesions, injuries, influence of drugs, etc. Much random evidence was collected in early days concerning maturation in the human foetus and in the post-natal period, and concerning the relation between maturation and behavior.²³ In modern times the embryologists have achieved a large body of valid data. Even some controlled studies have been made.²⁴ Observational and experimental evidence from these studies points to considerable similarity between animal and human maturation in the early physical stages of growth.

Controlled studies and common sense observation both reveal further evidence concerning later stages of growth. Certain babies kept off their feet by parents or physicians for various reasons until well past the age at which babies usually "learn" to walk can very often stand up and walk nearly as well as those who have been "learning" for some time. The true learning period in those cases is distinctly shorter than for those who were free to walk earlier. Maturation has played a dominant part but learning is clearly present. The power of maturation is further supported when we consult averages. Babies learn to walk on the average at about fourteen months though there are wide variations in selected individual cases. Parents or other adults cannot accelerate the initiation of walking prior to proper maturation by any teaching, exhortation, punishment, or continued opportunity. In one study of twins, one child was given every opportunity to crawl, to creep, to climb, even to swim.²⁵ The other twin was deliberately neglected and was definitely unpracticed in these activities. The trained twin did not walk any earlier than his unpracticed brother.

Individual differences in appearance of early physical behaviors per-

²³ Leonard Carmichael, "A Re-evaluation of the Concepts of Maturation and Learning," *Psychological Review*, Vol. 43 (September, 1936), p. 463.

²⁴ W. S. Ray, "A Preliminary Report on a Study of Foetal Conditioning," *Child Development*, Vol. 3 (June, 1932), pp. 175-177.

²⁵ Myrtle B. McGraw, *Growth. A Study of Johnny and Jimmy* (New York, D. Appleton-Century Co., 1935).

sist whether or not special teaching, coaching, commendation, or condemnation is given. Just as man cannot add a cubit to his height by taking thought, neither can he affect other physical or certain behavioral aspects in advance of sufficient maturation. These facts were noted but imperfectly understood from the very earliest days of child study. Modern studies supply reliable and valid data.²⁶ The monumental work of Gesell and his students at the Yale Clinic of Child Development should be made available to all students of teaching.²⁷

Carrying the analysis further, it is to be noted that not only does walking appear when proper maturation has taken place, but there is a fairly well-fixed series of preliminary activities which must mature first and in sequence. The power of maturation is indicated in that these reasonably well-patterned activities take place without important variations. In this same connection, however, we may see more clearly the effect of environmental factors. The developmental sequence is clearly aided or retarded in achieving itself by the type of surroundings in which the baby grows, the furniture and other objects, amount of handling by adults, freedom or restriction of movement. The baby's own

²⁶ Wayne Dennis, "The Effect of Restricted Practice upon Reaching, Sitting, and Standing of Two Infants," *Journal of Genetic Psychology*, Vol. 47 (1935), pp. 17-32.

—, "Infant Development under Conditions of Restricted Practice and of Minimum Social Stimulation A Preliminary Report," *Journal of Genetic Psychology*, Vol. 53, (September, 1938), pp. 149-157.

Ovis C. Irwin, "The Amount and Nature of Activities of New-Born Infants under External Stimulating Conditions the First Ten Days of Life," *Genetic Psychology Monographs*, No. 8, 1930, pp. 1-92.

²⁷ Arnold Gesell, and others, *The First Five Years of Life: A Guide in the Study of the Pre-School Child* (New York, Harper & Bros., 1940). This is a new edition of the volume, *The Mental Growth of the Pre-School Child* (New York, The Macmillan Co., 1925). The 1940 edition is one of the most interesting and stimulating volumes for the average student. Definite readings should be assigned (see end of this chapter). There are illustrated in addition many methods for examining and evaluating behavior. On pages 369-376 there is a most valuable bibliography of 142 selected titles.

—, *The Guidance of Mental Growth in Infant and Child* (New York, The Macmillan Co. 1930).

—, and others, *An Atlas of Infant Behavior A Systematic Delineation of the Forms and Early Growth of Human Behavior Patterns*. Illustrated by 3200 action photographs. Two volumes. (New Haven, Yale University Press, 1934).

—, and Helen Thompson, *The Psychology of Early Growth* (New York, The Macmillan Co., 1938).

—, Catherine S. Amatruda, Burton M. Castner, and Helen Thompson, *Biographies of Child Development. The Mental Growth Careers of Eighty-four Infants and Children* (New York, Paul B. Hoeber, Inc., Medical Book Dept. of Harper Bros., 1939).

A. T. Jersild, *Training and Growth in the Development of Children: A Study of the Relative Influence of Learning and Maturation*, Child Development Monograph No. 10, 1932, pp. 16 ff. contain excellent summary of studies.

M. M. Shuley, *The First Two Years* (Minneapolis, University of Minnesota Press, 1933).

John B. Watson, *Psychological Care of Infant and Child* (New York, W. W. Norton and Co., 1928).

—, *Behaviorism* (New York, W. W. Norton and Co., revised 1930).

activities in attempting to crawl, to stand, to walk, all contribute to the skill achieved in the maturing activities.

Other illustrations here are seen in the delayed maturing of sex organs and behaviors connected with sex attraction. Certain physiological manifestations are delayed, appearing at puberty. Behavior reactions of attraction to the opposite sex, interest in love stories, etc., follow this late maturation. The typical acts of courtship and ceremonies of marriage, differ widely between races and regions. This is the result of local influences. The relation between maturation and outside influences was developed in earlier paragraphs on *insight and readiness*.

Mental and social maturity and learning. *Mental Maturity.* Mental growth is not so easy to measure, since it must be measured indirectly through tests or observations of its use. Measurement of mental growth or intelligence is further complicated since social stimulation, educational opportunity and the like strongly affect growth. The units of measurement are borrowed from chronological growth, namely, years and months. Tests of this type give us one measure of mental maturity, the MA or mental age. Another measure is the IQ or intelligence quotient, which is the relation between chronological and mental age, though it can be derived directly from some tests.

The means of measurement in all these tests are subject to much controversy. The units of measurement are particularly unsatisfactory to the advanced students in the field. Doubtless newer instruments and units will be available to the teacher in the classroom.²⁸

Intelligence and mental-age tests are of various forms, some calling for mechanical manipulation, some for verbal response, some for non-verbal, and some for paper-and-pencil reaction. There are also scales and check lists for controlled observation of behavior. We need not go into details. Suffice it to say that the measures do have considerable reliability, each for its own type of material. The different types seem to measure different items only in part, thus making more than one test necessary. Mental growth, like the physical, seems to be gradual and constant and seems to continue longer than physical growth. There are variations between children, but each child seems to have a unique individual pattern, rhythm, and style of his own. There is consistency but more variation than found in natural physical growth. The separation of physical and mental here is arbitrary and for discussion only, since both are within one organismic pattern. It is to be expected then that the general laws and processes of growth would apply to body and mind, since each is a function of a unified organism. Just as the neu-

²⁸ All recent growth studies and mental measurement investigations discuss this and make various suggestions. See for instance

S. A. Courtis, *The Measurement of Growth* (Ann Arbor, Mich., Brumfield and Brumfield, 1932)

W. F. Dearborn, and John W. M. Rothney, *Predicting the Child's Development* (Cambridge, Mass., Sci-Art Publishers, 1941).

rologist and embryologist study the growth of bodily structure, so the genetic psychologist seeks to discover how mental life and behavior develops.²⁰

We do not know as much as we should like to about mental maturity but some manageable principles are available, the application of which to education is even more important than in the case of physical growth. It is futile to present curriculum material before the child has an adequate background of experience and mental maturity: for instance formal arithmetic in the primary grades. Reading materials typical of primers and first readers until well after the turn of the century were absurdly out of line with the mental maturity of the children. Another error is to expect results from children which satisfy adult standards. Children always draw things as they *are* instead of as they *see* them. Not until this period has been outgrown, that is, greater mental maturity achieved, will they stop drawing houses with the furniture showing through the walls or men on horseback with both legs showing. In fact at early levels of maturity the children may in fact *see* things this way. Visiting schools recently the writer was presented by a proud primary child a drawing of "Daddy Coming Home." Daddy was as tall as the house and was smoking a huge black pipe which if in proportion would have had a bowl the size of a bushel basket. Meeting "Daddy" and the pipe later it was clear that the child probably did identify daddy-coming-home by the outside pipe! The obvious failure to develop an acceptable skill in drawing which is easily possible for practically everyone is in part due to ridicule which inhibits natural growth. Some children are "dull" or serious problem cases, not because they are inherently dull or bad but because their normal mental and social growth was interfered with. Many an average or bright pupil has stopped learning and gives every evidence of backwardness, that is, low or retarded mental maturity, because of the injudicious remarks of parents, teachers, or playmates. Convince a child that he is stupid and he will often become so.

Training given in advance of maturity usually results in pseudo-learning which disappears shortly. Any number of experiments show that children who are coached for intelligence tests or given extra drill looking toward subject-matter achievement tests will gain, but after a period the gain is lost. The same thing occurs with scores of students who are crammed for the college entrance examinations. If crammed in excess of their native ability to understand, or their experiential background, they will pass the examinations but shortly will flunk out of college. More will be said of this in Chapter 16 on practice. The natural development of mental maturity, far more than physical maturation, is affected by innumerable environmental factors.

Social maturity This term has had wide circulation recently and refers to a vitally important aspect of development in the learner. Tests, scales,

²⁰ See again previous references to Gesell, Watson, and others.

and check lists are available.³⁰ Social maturity is usually stated in terms of described levels of social behavior. Various aspects of conduct are used. Development of maturity may be noted for instance in such items as recognition of the rights and responsibilities of self and of others, in getting along with others, in making friends, in exercising leadership, in manifesting cooperation with a leader or a group, participating in common activities, acting in accordance with the social mores, customs, and institutions of the given social group, in making moral judgments, in taking initiative. The Vineland Social Maturity Scale for instance outlines the development of maturity in eating and dressing without help.³¹ The same scale indicates that a normal six-year-old child can go to school alone; a ten-year-old gets about his home town freely; while at eighteen he can arrange fairly complicated trips to distant points. Another sequence cited indicates that a five-or-six-year-old is socially mature enough to be sent with small sums of money to make specific purchases; the nine-year-old can make small purchases for himself, exercising some choice and discretion; the twelve-year-old can begin to buy some of his own articles of use; the fifteen-year-old is able to have an allowance to spend and will have reasonable discretion in the use of it, and so on. Still other items studied as indicative of social maturity are interests, hobbies, attitudes, and fears.

Again, as with other maturities, outside influences play a tremendous part: parents, playmates, teachers, socio-economic status and many others are vital.³²

Summary. This chapter is very difficult to summarize. It is itself a summary covering an enormous amount of material drawn from far-flung sources and not otherwise summarized in the literature for teachers. However a few statements will be made.

1. Living organisms are unitary, integrating wholes.
2. Living organisms constantly seek to maintain their primary integration, or equilibrium.

³⁰ Charles G. Wang, *An Annotated Bibliography of Mental Tests* (Peiping, China, Catholic University Press, 1939-1940), 2 vols. Available in many libraries in the United States. Pages 235-282 contain an extensive list of maturity scales and other instruments dealing with personality traits, integration, etc.

³¹ Edgar A. Doll, *The Vineland Social Maturity Scale* (Vineland, N. J., The Training School, 1936).

³² It seems futile to cite studies at this point, since so many are becoming available. The following are cited as illustrations.

Harold H. Anderson, "Domination and Integration in the Social Behavior of Young Children in an Experimental Play Situation," *Genetic Psychology Monographs*, Vol. 19, No. 3, 1937.

—, "The Measurement of Domination and of Socially Integrative Behavior in Teachers' Contacts with Children," *Child Development*, Vol. 10 (June, 1939), pp. 73-89. See also numerous other studies by Harold A. Anderson.

Arnold Gesell. His various volumes are mines of information.

Clark Murchison, editor, *Handbook of Child Psychology* (Worcester, Mass., Clark University Press, 1933, Revised). Reference to many studies.

Stimulation, either from within or without, disturbs the equilibrium of the organism and behavior ensues aimed at restoration of equilibrium. This behavior is unitary, the organism interacting as a whole with a patterned whole in the environment. Since equilibrium cannot be permanently maintained by a dynamic organism in a dynamic environment, continuous interaction results. This mutual interaction changes both organism and environment which is another way of saying that the organism learns.

3. The growth of organisms is determined in part by heredity, in part by environment.

The primary physiological gradients, the plastic nervous system, the endocrine glands, and the like, represent inherited capital. Environmental influences are infinite in number, and play an increasing part in later, particularly mental, growth.

4. Growth, in general, takes the form of an orderly, progressive, differentiation out of and from the original organismic pattern. That is, in general, growth is regular and even instead of saltatory and irregular except as noted in 6 below.
5. Growth in individuals, in general, usually maintains the pace at which it starts. Exceptions are noted in No. 6 below.
6. Growth shows certain oscillations in rate at various ages and levels, between the sexes, and for various growth factors

There is an adolescent spurt, preceded and followed by periods of decelerating growth. Boys grow faster than girls at one period, girls surpass boys at another. Predictions of future growth are hazy.

7. Growth oscillations in rate and amount are more rapid and intense the earlier the physiological changes of adolescence appear.

The onset of these variations can be predicted two or three years before the chief effect appears.

8. Growth in a given individual may vary greatly from the average but will be in accordance with the general laws.

These individual variations are much more important than average differences between sexes, ages, and ethnic groups. Individual growth curves are important instruments of guidance in learning.

9. Growth of various separate items proceeds at differential rates; maturity is achieved at different times; but these differentials are subordinate to the general laws.
10. Growth irregularities in the sense of serious variations from expectancy do occur and may be either positive or negative.

The various growth studies disagree on the causation of these variations. It is not known positively whether certain types of irregularity are primarily owing to innate factors, certain others to environmental influences. In many given individual cases the immediate causes are only too obvious. Various congenital factors clearly affect the indi-

vidual's mental and emotional growth and stability. In others any of several environmental factors are clearly involved. In given individual cases, especially with school children, efforts to diagnose causative factors may yield very helpful data for the further guidance of the child. Further research is needed on causes.

11. Growth, in general, is rounded rather than uneven.

The factors are correlated positively with each other and do not ordinarily follow a pattern of compensation. Again the growth studies are not conclusive. The correlations which exist are positive but low. Predictions concerning one element based on growth in another are uncertain. Some studies believe there is appreciable correlation between mental and physical growth, others not. One study does show that boys and girls with early maximum-growth ages, and hence a more intense period of growth, do tend to be brighter than boys and girls whose maximum-growth ages are later and whose intensity of growth is not so great.⁸³ It also shows that there is no mental lag or inertia during the adolescent spurt or period of intense physical growth. Children do just as well in scholastic achievement and in mental tests during these periods as during periods of less intense physical growth. Scholastic slumps cannot be laughed off because "the child is growing so fast."

While the facts are not all in, it will probably be wise not to accept poor work in spelling and arithmetic from students who do quite well in history and geography. The former must be taught more effectively. It is rarely true that a pupil can do well in everything but "just cannot do arithmetic." It is more likely that arithmetic was poorly taught or was introduced in advance of maturation and readiness. The marked variations in performance in the case of specialists, expert in one field and poor in others, are usually owing to training.

SPECIAL NOTE ON THE PERIODS OF GROWTH

The general principles of growth have been summarized in the foregoing pages in some detail because this material is not so summarized elsewhere as to be readily usable by teachers-in-training.

The periods or levels of growth, in contrast, have been well discussed for the benefit of teachers, both in brief, compact summaries and in whole volumes. These materials are readily accessible to all teachers. Detailed discussion of the periods of growth is therefore omitted from this already large volume, thus saving some twenty or more pages. Students arriving at this point without knowledge of the characteristics of the successive levels of growth should read a summary or a small volume as if it were part of this chapter.

Incidentally the term "periods or levels of growth" should not mislead any one into thinking of the periods as disjunctive or sharply distinguishable from each other. Growth is in the main even, regular, and continuous. The periods of oscillation have been noted earlier. Nevertheless, periods of development can be

⁸³ W. F. Dearborn, and John W. M. Rothney, *op. cit.* Use index and table of contents.

discerned. For instance the physical, mental, and social traits of children of three are quite different in many respects from those of youths of thirteen, or young people of twenty-three. The information possessed by children of three and thirteen obviously differs greatly. Similarly with interests and attitudes. Things which enthrall children of five are looked upon with condescension by those of fifteen. The implications for education are fundamental.

GENERAL READINGS ON GROWTH PERIODS

Brief, compact, summaries. Read any one

- BURTON, William H. *Introduction to Education* (New York, D. Appleton-Century Company, Inc., 1934), pp. 487-504. Probably most detailed and concrete. Educational implications pointed out. Note bibliography and footnotes.
- BRUCE, William F., and FREEMAN, Frank S., *Development and Learning* (Boston, Houghton Mifflin Company, 1942). The organization in this book is peculiar, if existent at all. Nevertheless the material is vivid and enlightening. Use must be made of table of contents and index to locate material on topic. Note however Chapters 2-8 and paragraphs in 17, 18, 19.
- HARTMAN, George W., *Educational Psychology* (New York, American Book Company, 1941). Chaps. 3 and 4, particularly the latter. Excellent very brief summary.

Single Volumes on Periods of Growth

- BERMAN, Louis, *The Glands Regulating Personality* (New York, The Macmillan Company, 1911 and 1938). Effort to identify developmental stages with the supremacy of certain endocrine glands. Interesting but not particularly applicable to educational problems.
- CABOT, Ella L., *Seven Ages of Childhood* (Boston, Houghton Mifflin Company, 1921). Interesting and vivid discussion. Abounds in concrete illustration. Especially good for primary and elementary teachers.
- HOLLINGWORTH, H. L., *Mental Growth and Decline* (New York, D. Appleton-Century Company, Inc., 1928). Good. Contains a wealth of reference to original studies. Needs to be corrected in terms of modern knowledge about adolescent spurt.
- KIRKPATRICK, E. A., *The Individual in the Making* (Boston, Houghton Mifflin Company, 1911). Despite the early date is still one of the best discussions for teachers.
- STRANG, Ruth, *An Introduction to Child Study* (New York, The Macmillan Company, 1930, revised 1938). An excellent summary with copious references.
- TYLER, J. M., *Growth and Education* (Boston, Houghton Mifflin Company, 1905). Again a valuable reference despite the date. Emphasis chiefly on physical growth whereas Kirkpatrick's is on mental. Needs correction on adolescent spurt.
- See Burton. *Introduction to Education*, page 489; footnotes for half a dozen other volumes which devote much space to periods of development.

Specialized Readings on Growth Periods

The foregoing chapter is a summary of material which ordinarily would be covered in an earlier course in the growth and development of the child. It is included here since many students enter the course in principles of teaching without this background. References are, therefore, to general summary treatments. Special references for detailed study are not included. Should some addi-

tional reading be necessary at this point with some groups, references are easily found.

The early observational and empirical studies of early childhood may be found through consulting the card catalogue and the periodicals. The *Pedagogical Seminary* is of particular interest here.

Later, modern studies make use of refined statistical and experimental techniques. The volume of research is so tremendous that a valuable sampling is impossible to present in the space available here. The material is easily located in a library card catalogue and in the various guides to periodical literature. Hence the following list of prominent leaders and institutions in the field from which material came is given.

BALDWIN, Bird T., his successors and students at the University of Iowa Child Welfare Station.

DEARBORN, W. F., associates and students at the Harvard Psychological Clinic.

COURTIS, S. A., *The Measurement of Growth* (Ann Arbor, Mich., Brumfield and Brumfield, 1932).

GESELL, Arnold, associates and students at the Yale Clinic of Child Development.

MEER, Lois H., Teachers College, Columbia University.

MEREDITH, Howard V. Articles and summaries.

OLSON, Willard C., University of Wisconsin.

STOLZ, Herbert R., Division of Child Development and Teacher Personnel of the Commission on Teacher Education, American Council on Education

Material available in files at Division of Child Development, University of Chicago, and Institute of Child Welfare, University of California

White House Conference on Child Welfare

Society for Research in Child Development

Child Study Association of America

In addition many excellent volumes are available on child study and on the psychology of adolescence.

SUPPLEMENTARY REPORTS

This extensive chapter covers so much ground and for most classes will introduce so much new material that some instructors will wish to supplement it not merely with the usual readings but with special reports. These reports will need to be arranged by each instructor in terms of class background. The following items are merely suggestive.

Field Theory Psychology

Students may read and report on some of the more direct and simple explanations of the "field" in modern science. This may be followed by another report with special reference to psychology.

The Organismic Concept

The material on this is difficult and technical. Students without some background in biology cannot report upon it easily. Supplementation for this item should probably be made by the instructor himself.

Principles and Processes of Growth

Class reports, consisting of reviews of two or three of the recent major growth studies may be made by two or three students. Younger and less well prepared classes may summarize two or three current articles on any of the various aspects of growth study.

Maturation

Students may review any of Gesell's most recent volumes. Analysis here should be fairly extensive, using the pictures and case studies as reproduced in the books.

Films made by Gesell and associates are available directly from the Yale Clinic and also through the film supply houses catering to schools. There are few more effective materials than these. The cost is nominal.

Current articles may be reviewed.

Insight

The original research studies which are footnoted in the general references given in this chapter are valuable and are recent enough so that the details are not usually known to students. The writer has found student reports in class very enlightening. The experiments are easy to understand and are interesting in their own right. Watch also for current articles.

Readiness

This concept is simple and easily understood by students. However, there is considerable difference in interpretation and much recent critical literature about it. Students interested in particular subjects, reading, arithmetic, algebra, or in various social readinesses or maturities may organize class reports. In all instances the recent criticism, re-interpretations, etc., must be included. For instance, a report on "reading readiness" based on materials available up to a few years ago would be very misleading.

Heredity and Environment

The difficulty here will be to keep this topic from running away with the course for the moment, the material is so extensive and challenging. Students should have met it long ago in other courses but if background must be built up here it must be remembered that a brief excursion is all that is possible.

The early studies beginning with Galton and contemporaries may be summarized plus the modern critical analyses of these studies.

Reviews may be made of the Juke, Kallikak, Edwards Family, type of study, plus modern analysis.

The various yearbooks and monographs on "nature *versus* nurture" may be examined and very briefly characterized.

The numerous studies on twins may be handled similarly.

Note. Materials on these topics will be found chiefly in magazines devoted to psychology, biology, neurology, genetics, psychiatry, etc. Attention should not be confined to educational magazines, except for articles giving implications for and applications to education.

DISCUSSION QUESTIONS

Because of the extent of the material in this chapter and its newness to many students, the writer has found it very valuable to devote one or more class hours to free discussion. Ordinarily students will have more than enough questions of their own. The following queries will stimulate and organize class questioning.

1. List any new concepts or beliefs which have come to you from this chapter and supplementary readings, and which you readily accept. Clarified and amplified ideas may be listed as well as new ones.

2. Recall any incidents from your own life or schooling, or incidents observed in the lives of others, which were perhaps puzzling, or even inexplicable, at the time but for which you now have some explanation derived from the readings.

3. List any concepts or principles advanced by the reading which you cannot accept at the moment, or about which you are in doubt. State explicitly why you cannot accept them. This is an extremely important exercise since it directs student and instructor to important points of emphasis or misunderstanding.

4. What accepted principles of education, what prevalent practices in educa-

tion would have to be abandoned if the facts and principles in this chapter were accepted?

General Discussion Questions on Principles and Periods of Growth

1. Can you recall from your own experience or from observation any incidents which illustrate any of the facts about growth: particularly any of the characteristics of the periods of development? Use current observation periods in school as well as past experience.

2. Can you recall and report in some detail to the class any illustrations from literature showing correct or incorrect portrayal of infancy, childhood, adolescence? Such discussions occur constantly in all types of literary work and are very enlightening. The incorrect pictures are easily detected and usually amusing in their absurdity. The correct ones often carry more conviction than technical discussions.

3. If you are familiar with certain comic (so-called) strips, Harold Teen, Gasoline Alley, Skippy, Smutty, Orphan Annie, etc., present arguments showing that the characters are or are not true to life. Particularly contrast Smutty with Orphan Annie and with the Katzenjammer Kids.

4. Many adults say that adolescents are "not sensible." Explain clearly why they should not be "sensible" as defined by adults.

5. What is the educational significance of the fact that many persons manifest strikingly contradictory traits and temperaments during certain years of growth?

6. Why do you suppose there are so many serious misconceptions in popular thinking about adolescence and adolescents?

7. Describe some mistake you have made in the past in dealing with infants, children, adolescents (or might have made in the future), which you now believe you would not, or will not, make because of your better knowledge of these periods.

8. Organize a discussion showing whether you would or would not expect adolescent boys and girls to participate eagerly and spontaneously in so-called "extra-curricular" activities.

9. Tell clearly and in some detail what you think is meant by the statement that "an adolescent is an inveterate metaphysician." What has this to do with education and teaching?

10. Some one has said that, "A high school differs from an elementary school chiefly in the age of the pupils attending each."

Present arguments showing that this is or is not true.

General Discussion Questions on Heredity and Environment

1. Common opinion concerning heredity and environment contains numerous astounding misconceptions, downright errors, old wives' superstitions, etc. List the general reasons why opinion is so at variance with the facts in this area. This is important for your own thinking.

2. Give illustrations from everyday observation, conversation, current public discussions of the "you-can't-change-human-nature" fallacy. Attempt the much more difficult task of seeing through the superficial thinking and giving illustrations in opposition.

EXERCISES AND REPORTS

1. Suppose that the educators managing the grade and high school you attended had been able to utilize all that we now know of the nature of *growth*,

particularly of the maturity levels. Organize a report showing changes which might have been made in general policy, administration, curriculum, methods of teaching, grouping, promotion, examining and marking, or any other factor. Be specific.

2 Make a series of observations in class rooms List and comment upon any specific incidents and practices which are clear-cut *violations* of the facts about growth, facts about *heredity and environment*. List and comment similarly on any which are clear-cut efforts to proceed in *accord* with the facts

3 Do likewise for *maturation, insight, and readiness* The reports on the two latter will be simple and inadequate at this stage but will constitute valuable first contacts. These items will reappear in later chapters.

4. Develop in some detail the educational implications of and probable future improvements in education resulting from better understanding of the *laws of growth* (any selected one), the *organismic concept, maturation, insight, readiness*. Individual students may select any one for report.

5 Repeat instructions as on 1 and 2 for the general concept of field theory psychology.

READINGS

Secondary references containing material similar to that in this chapter and to be used as necessary supplementary reading.

The Organismic Concept

BURTON, William H., *Introduction to Education*, (New York, D. Appleton-Century Company, Inc., 1934), pp. 472-504, Chap. 19.

COMMINS, W. D., *Principles of Educational Psychology* (New York, The Ronald Press, 1937), pp. 308-313 in Chap. 11

HARTMANN, George W., *Educational Psychology* (New York, American Book Company, 1941, Chaps. 3 and 4, particularly 3.

LANE, Robert H., *The Teacher in the Modern School* (Boston, Houghton Mifflin Company, 1941). Similar to but simpler than Burton above Chief reference to elementary school applications. Note excellent bibliography.

LEE, J. Murray, and LEE, Dorris M., *The Child and His Curriculum* (New York, D. Appleton-Century Company, 1940), pp. 23-59, Chap. 2. Largely on non-physical aspects. Note excellent bibliography.

WHEELER, Raymond H., and PERKINS, Francis T., *Principles of Mental Development* (New York, Thomas Y. Crowell Company, 1932), pp. 29-56, Chap. 3, pp. 10-14. Excellent material though somewhat difficult reading at times.

Use the index in any new educational psychologies which appear.

Field-Theory Psychology

Use references in footnote 14 on page 154. See general references below.

Maturation

BRUCE, William F., and FREEMAN, Frank S., *Development and Learning* (Boston, Houghton Mifflin Company, 1942). Use the index.

COMMINS, W. D. Volume noted above. Pages 276-286; 125-128; 331-334; 367-372; 39-51.

GESELL, Arnold, Volumes noted in footnote 27 on page 171, particularly *The First Five Years of Life*.

HARTMANN, George W., Volume noted above. Use term "growth" in index.

- LEE, J. Murray, and LEE, Dorris M., Volume noted above. Pages 144-5; 168-9.
 Michigan State Department of Education, *What Does Research Say?* Bulletin No. 308 (Lansing, Mich., State Department of Education, 1937), Chap. 2.
 National Department of Classroom Teachers (jointly with American Educational Research Association). *The Implications of Research for the Classroom Teacher* (Washington D. C., National Education Association, 1939), Chap. 5. Overlaps other topics below also
 WHEELER, Raymond H and PERKINS, Francis T., Volume noted above. Pp. 239-259, Chap. 13.

Individuation and Differentiation

- Use references in footnotes 10 and 14 on pages 151 and 154.
 HARTMANN, George W., *Gestalt Psychology* (New York, The Ronald Press Company, 1935). Use index.

Insight

- Use references in footnote 15 on page 156. See general references below.
 KOHLER, Wolfgang, *Gestalt Psychology* (New York, Liveright Publishing Corporation, 1929). Use index.
 ———, *The Mentality of Apes* (New York, Harcourt Brace and Company, 1927). Use index
 KOFFKA, Kurt, *Principles of Gestalt Psychology* (New York, Harcourt, Brace and Company, 1935). Use index.
 ———, *The Growth of the Mind* (New York, Harcourt, Brace and Company, 1924).
 National Society for the Study of Education, "The Psychology of Learning," *Forty-First Yearbook*, Part II, pp. 185-199.

Heredity and Environment

- Use references in footnote 18 on page 165.
 Also use index in educational psychologies.
 If necessary turn to primary source books in the field. Use card catalogue, read for reports, making discriminations as to usefulness.
 COMMINS, W. D., Volume noted above, Chapters 9 and 10.
 THORPE, Louis T., *Psychological Foundations of Personality* (New York, McGraw-Hill Book Company, Inc., 1938), Chaps. 2, 3, 4, particularly 3 and 4. Good extensive summary. ●
 WHEELER, Raymond H, and PERKINS, Francis T., Volume noted above, Chap. 9. *Primary references and extensive summaries* in secondary sources. For instructors and advanced students. These go far beyond the supplementation indicated above and are not valuable for young students who lack background. The more they can be used, however, the better.

General References: Biological and Neurological Background

- CHILD, COGHILL, HERRICK, FRANZ, and LASHLEY as noted in early pages of this chapter.
 CANNON, W. B., *The Wisdom of the Body* (New York, W. W. Norton, Inc., 1939). Good reading on general principles for any one.
 ———, *Bodily Changes in Pain, Hunger, Fear, and Rage* (New York, D. Appleton Company, 1914, second edition 1929).

GOLDSTEIN, Kurt, *The Organism* (New York, American Book Company, 1939). From physicians' viewpoint.

General References: Field-Theory Psychology

* Note Other schools of psychology will be reviewed and comparisons made briefly in Chapter 7 which summarizes the psychology of learning for this volume.

HARTMANN, George W., two volumes as noted above. The one entitled *Gestalt Psychology* is a mine of information on origins and backgrounds. Valuable to instructors.

KOFFKA, Kurt, two volumes as noted above. His *Principles of Gestalt Psychology* is a systematic presentation, well known and widely used.

KOHLER, Wolfgang, two volumes as noted above. His *Gestalt Psychology* is easier reading than some others but does not cover as much ground. His *The Mentality of Apes* is a classic and well worth reading for itself.

LEWIN, Kurt, *Principles of Topological Psychology*, (New York, McGraw-Hill Book Company, Inc., 1936).

OGDEN, Robert M., and FREEMAN, Frank S., *Psychology and Education* (New York, Harcourt, Brace and Company, 1926, revised 1928 and 1932) Highly recommended by many writers and instructors. The present writer found it difficult for students.

National Society for the Study of Education, *Forty-First Yearbook*, Part II as noted above. Chapter 5 is one of the best summaries in existence. Chapter 6 presents Lewin's views. Other chapters analyze the other schools of psychology and will be noted in Chapter 7 below. The whole volume is valuable.

WHEELER, Raymond H., *The Science of Psychology* (New York, Thomas Y. Crowell Company, 1940. His *Readings in Psychology*, same publisher, 1930, supplies much supplementary material.

—, *Laws of Human Nature* (New York, D. Appleton Company, 1932) An early semi-popular summary.

—, and PERKINS, Francis T., Volume noted above. An excellent, enlightening summary. Overlaps badly and is difficult reading at times but concrete and good

* *General References: Philosophic and Scientific Background*

EDDINGTON, A S., *The Nature of the Physical World* (New York, The Macmillan Company, 1928).

DRIESCH, Hans, *The Crisis in Psychology* (Princeton, N. J., Princeton University Press, 1925).

HOWELLS, Thomas H., *Hunger for Wholeness* (Denver, Colo., World Press, 1940). From the viewpoint of religion.

HUMPHREY, George, *The Nature of Learning in its Relation to the Living System* (London, Kegan, Paul, Trench, Trubner, & Co., Ltd., 1933). Chapters 2, 3, and 4 contain an excellent scholarly analysis of the concept of a system or field. Chapter 5 on learning is not so helpful. The scholarly style is not easy for superficially trained students, but instructors and advanced students will find much excellent material.

MORGAN, C. Lloyd, *Emergent Evolution* (New York, Henry Holt and Company, 1923). An early and important book.

RAUP, Robert B., *Complacency* (New York, The Macmillan Company, 1925).

SMUTS, Jan, *Holism and Evolution* (New York, The Macmillan Company, 1926). An important discussion

WHITEHEAD, A. N., *Science and the Modern World* (New York, The Macmillan Company, 1925)

Note. The foregoing sampling is, it will be recognized, fragmentary. Interested students will find scores of volumes available.

General References: Education Applications

HARTMANN, George W., *Gestalt Psychology* as noted above, contains good summary in Chapter 16. His *Educational Psychology* is wholly devoted to this topic. National Society for the Study of Education, *Forty-First Yearbook*, Part II as noted above has extensive summaries in Chapters 8 to 13 inclusive. Very valuable material.

WIEDERAENDERS, M. F., "A Critique of the Bond and the Gestalt Psychologies Applied to Certain Problems of Education," *University of Iowa Studies in Education*, Vol. 8, No. 6, New Series No. 260 (October 1, 1933), pages 36-75. Whole bulletin valuable and may be read in connection with Chapter 7 later. For our purposes here pages 50-54 and possibly 54-75 are valuable.

6

The General Characteristics of Teaching

The preceding chapters have clarified to the student many of the aspects of modern teaching. Principles and illustrations have appeared since the opening pages. The general characteristics of teaching may be summarized, therefore, with a minimum of discussion.

Teaching is the encouragement and guidance of the learning activities of pupils, whether children or adults. This includes both the spontaneous learning processes which occur in the natural on-going activities of persons and the learning processes resulting from teacher leadership, stage-setting, or other legitimate stimulation.

Teaching demands wide knowledge, subtle insights, complicated skills, and a dynamic personality. This sounds like a large order and is certainly far more than the public at present pays for. Foregoing chapters have made clear that teaching is not a simple affair: it cannot be done successfully by uninformed, indifferent, unskilled individuals of colorless personality and limited life experience.

The knowledges, experiences, and the elements of desirable personality are stated with more and more agreement by educational leaders. The teacher-training institutions still lag far behind the best thought, but improvement is on the way. The major categories indicated will be analyzed briefly since we are not concerned here with the major problems of teacher training.

Sources of necessary knowledge and skill. Limited space prohibits more than an outline, but the inferences are easily drawn.

1. *The way human beings live and grow*

Knowledge of the biologic organism, the neural system, the psychological processes, the methods of personality development, psychiatric analysis of personality disorders.

Skill acquired through study of one's own personal problems of living (maintenance of health, methods of solving problems, eliminating personality defects, and many others); observation of one's fellows and their methods of handling their problems; observation of children at different maturity levels and of different socio-economic status; participation in caring for children; observation of analysis of problem-cases at guidance clinics or by psychiatrists.

2. *The way society lives and grows*

Knowledge of societal organization, mores, customs, institutions, accepted

spiritual values; of the origin and evolution of these factors; of the effects upon both individuals and institutions of interaction between the factors.

Skill acquired through varied life experience; travel in, and observation of, different parts of the country, different modes of life, different social-economic groups; participatory observation, preferably actual field work with social agencies; participation in the work of ordinary community organizations; work experience.

3. *The way individuals and environments interact and affect each other*

Knowledge of behavior, its dynamics, development, consequences; of the effect of social and physical environments on personality.

Skill acquired through participation in community organizations; observation, perhaps some elementary participation in work of behavior clinics, juvenile courts, charitable institutions, social-welfare agencies, playgrounds, settlement houses, community centers of all kinds; observation of adult economic and political organizations, participation in their activities when possible; attendance upon public forums; attendance upon legislative agencies in session, participation in work of school-guidance clinics and in counseling; notation and attempted explanation of individual differences; work experience.

4. *The way democracy operates as a total social theory*

Knowledge of the emergence of political democracy; the problems of currently emerging economic and social democracy; racial and religious tolerance; freedom of speech and utterance; pressure groups and vested interests; relation between fact and power in the management of public affairs, etc., etc.

Skill acquired through participation in all community organizations available; attendance, participatory observation, and actual participation where possible as in 2 and 3 listed above.

5. *The way subject-matter and all other educational materials and learning activities further the development of personality in a democratic society.*

Knowledge of the principles and processes of democracy, principles and processes of personality development; processes of interaction; of subject matter; of the inner processes of learning as far as they can be known; of the outer manifestations of learning; of the effect of all environmental factors on learning; of subject matter not merely in a major field but over several fields necessary to the points already enumerated above.

Skill acquired through critical analysis of one's own problem-solving processes; through observation, participation, and finally through teaching under guidance; operating diagnostic techniques; planning remedial measures; planning over-all teaching procedures; participating in curriculum organization.

6. *The way valid experimental investigations of the process of learning, the nature of the learner, the transfer of training, of the evaluation of results, of many other factors, affect teaching*

Knowledge of the vast technological background built up by the application of scientific methods to educational problems.

Skill acquired through analysis of certain of these investigations; through reading critical accounts of studies; through carrying on a few simple experimental studies during pre-service training and later as a regular teacher.

7. *The way valid philosophical criticisms of results and processes, of ultimate ends, in the light of values, affect teaching.*

Knowledge of the ethical or moral or spiritual values and ends accepted

by the society in question, of the processes of analytic criticism; of the processes of speculative philosophy as well as of the pragmatic.

Skill acquired through study of some of the philosophic analyses available; participation in elementary analysis of accepted materials and practices in the light of accepted values.

Certain basic understandings are necessary. Teachers must know and sincerely believe that:

1. *Learning can be done only by the learner. No amount of teacher activity or effort is of any value unless learning activities result.*
2. *The needs, interests, abilities, problems, and purposes of learner, whether sensible or not, are the only fruitful starting point and continuing motivation for learning activity.*
3. *The less sensible interests, purposes, and activities of the learner, that is the socially wasteful or useless, the selfishly individualistic, are to be made over through the sympathetic guidance of the teacher.*
4. *Subject matter is useful and meaningful only as it serves some worth-while need or purpose of the learner.*
5. *The teacher can help students to learn, can aid them in overcoming difficulties, in overcoming undesirable habits and attitudes, only as she understands the mental and emotional processes of the individual.*
6. *Democracy can be successful only as individuals are prepared for understanding of, and intelligent participation in it; are given a genuine faith in it and an ardent desire to make it work.*

One profoundly important general professional attitude is so necessary that its presence or absence may spell the difference between competence and incompetence.

Competence in teaching is not possible at all without an ardent desire to grow and to improve both personally and in professional knowledge and skill; willingness to give up easy, well-known routines, willingness to study the new and go through the arduous and difficult process of learning new ways.

Hopkins cleverly characterizes the widespread unwillingness to change, to study, to improve as "the professional disease of teachers."¹ Unfortunately, many powerful influences work against improvement among teachers, not the least of which is poor preliminary training. Another important obstacle to progress is the natural inertia of those individuals who dislike to be disturbed by new ideas, new methods with their attendant effort. The administration sometimes seems to reward those who do not disturb the peace. Tenure and salary increments are granted on the basis of mere length of service or college credits acquired rather than upon demonstrated growth in professional insights and skills. The successful teacher must have the force of personality to overcome these, to pursue professional study continuously, to experiment with new methods under controlled conditions, and to be "divinely discontented."

The elements in the necessary personality are summarized later in the chapter.

¹ L. Thomas Hopkins, *Interaction* (Boston, D. C. Heath and Co., 1941), p. 435.

Fundamental importance of basic knowledge and skill. Is all this really necessary? After all, teaching must be simpler than that—it has been done by less extensively trained individuals for a long time. It has been so done, and therein may lie one of the tragedies of civilization. The writer firmly believes that the individual who wishes to understand the field and work of education should have derived adequate understandings from anthropology, biology, sociology, psychology, and psychiatry; he should have read thoughtfully a history of civilization; he should have studied, if only briefly, the evolution of one or more human institutions such as marriage, government, language, money, the alphabet, or the number system; and he would have found a course in comparative religion highly desirable.² It is quite impossible to participate intelligently in classroom teaching without first understanding the nature of organized society and its institutions, the nature of human personality and its development, the relation between institutions and individuals, and, above all, the relation of education itself to both the evolution of society and to the development of individuals. It is quite impossible to teach adequately without first knowing not only the technical skills of guiding learning but the major skills of the democratic process of living.

Education is not, as is thought by the uninformed, the simple business of training individuals in the simple skills of reading, writing, and arithmetic. Education is in fact one of the fundamental institutions and social forces through which society and civilization perpetuate themselves, and through which the individual himself realizes his unique possibilities. Education is by no means confined to the school; but, for the moment, we are concerned with teaching within the school which has been set up as the instrument of organized society.

Teacher training lags but is undergoing improvement. A genuine tragedy of education—and it could be a very real tragedy for democracy—is that teacher training is still in crude, primitive form. Students preparing to be physicians and surgeons take as a matter of course a series of necessary background courses in physiology, chemistry, biology, anatomy; and they include a wide range of experiences during their internship. Similarly, students preparing for engineering or architecture cannot be accepted without adequate preliminary work in various branches of physics and mathematics. There is also a period of work experience accompanying the theory, plus apprenticeship in the field. This training cannot be waived. The difficult work of these professions simply cannot be carried on, or even learned, without adequate background and with-

² It is significant that a philosophy of education written by church leaders who naturally place first, knowledge of the spiritual nature of the learner and of the spiritual values accepted by mankind, insists strongly that there must be knowledge also of social organization, anthropology, and similar items. See J. D. Redden and F. A. Ryan, *A Catholic Philosophy of Education* (Milwaukee, Wis., Bruce Publishing Co., 1949), pp. 44-48.

out experiences to develop skills. Teaching is far more intricate than most professional operations. It is in fact one of the most difficult of all human activities if carried on successfully. The necessary background is enormous—and largely missing. Training in the skills is trivial in its insufficiency. Fortunately, this situation is keenly felt by leaders. The current upsurge of activity in the improvement of teacher training is one result. The extension of the older "practice teaching" into an internship of respectable duration and responsibility is under way. The slow but steady upgrading of standards for teacher certification (except for emergency pressures resulting from depression and war) is another result. Teacher-training institutions are only slowly emerging from the competitive and political stage. Their long isolation from the life of the nation will disappear as they attempt to give their students experience with work and with life. There is a slowly growing insistence that admission standards be sharply scrutinized. A few schools are exercising guidance during high school. A few actually reject applicants who are clearly unfitted for teaching through mental inability, emotional instability, or some other personality defect.⁸ Low salaries are a serious obstacle to the improvement of teacher training.

A narrow view of education and of teaching often held by a minority. The writer has for years secretly enjoyed a tragi-comic incident which occurs regularly during the third month of the course in the principles of teaching. The students enter, ready in the main, to discover what teaching is and to acquire some preliminary skills. A minority, however, come prepared to endure a year of boredom and monotony, a necessary preliminary to entering upon a life of comparative ease in the classroom. They know that education courses are dull and dreary. Requirement of these courses is an academic racket. It's all common sense anyway; any one can teach if he knows his subject matter.

The early discussions about connecting subject matter with the life of the learner, about diagnosing learning difficulties, about the dangers

⁸ See the many publications and activities of the Commission on Teacher Education of the American Council on Education; the work and publications of the National Association of Supervisors of Student Teaching, of the American Association of Teachers Colleges, of the National Society of College Teachers of Education; bulletins containing the National Survey of the Education of Teachers; of the Research Division of the N.E.A., and of many regional associations. See also

A Functional Program of Teacher Education (American Council on Education, Washington, D. C., 1941). An interesting account of the cooperative program developed at Syracuse University.

The Training of Secondary School Teachers (Especially with Reference to English) (Cambridge, Mass., Harvard University Press, 1942). Does not get very close to actual and specific problems of prospective teachers, hence may be regarded as a preliminary report of real and great value in indicating that academic and professional faculties are getting together on problems of teacher training.

E. S. Evenden, and R. F. Butts, *Columbia University Coöperative Program for the Pre-Service Education of Teachers* (New York, Teachers College, Bureau of Publications, 1942). Excellent concrete account.

Many other similar monographs and periodical references are available.

of verbalism are accepted smilingly as professorial idiosyncrasies. All professors have odd ideas. Don't mind them too much. We will soon get to the solid business of assigning lessons, making pupils learn, and keeping order in the classroom. But the discussions continue. Worse, practically all the assigned readings seem to follow the same line. Doubt grows. Does not this professor know that the way to teach is to assign lessons to pupils, make them learn the assignments, and keep them after school if they do not? Let's get on with the solid business of teaching. What has the pupil's IQ got to do with this anyway? As one graduate student (an experienced teacher), evidently learning to teach by ear, wrote on a question paper, "Does every child have an *aigue*?" What's all this nonsense about mental hygiene? My pupils will do what I tell them and like it—and they will have no trouble with mental hygiene.

The organismic concept... the pupil learns all over... repeating the words of book or lecture is not evidence of learning... animal learning... Koffka, Kohler, and the apes... field theory psychology... the gestalt... no instincts any more... interaction... use of the community as learning material... participatory planning... the core curriculum... units... diagnostic tests... problem-situation tests... behavior records... no failures... no marks...

...apperception versus individuation... individual differences... differentiated assignments... Gesell and genetic studies of maturation and learning... experimentation on reading habits... pupils learn the multiplication tables better by not memorizing them... memorizing the capitals of the states is a waste of time... insight... pacing... subtle manipulations of environmental processes...

...the necessity of knowing the inner mental and emotional processes of the learner... understandings, attitudes, special abilities... moral values...!

[It's a mad school, my masters!]

...experimentation with social climates... learning curves... trial-and-error, the good old stand-by, may indicate teacher failure and not pupil weakness...

[Who ever heard of such a thing!]

...background from biological research... sociology... delinquency causes and cures... and, last straw of all, guidance from that disreputable pseudo-science: psychiatry!

The course enters the third month. This nonsense must be stopped. Amused condescension has given way to a tiny doubt; the doubt, to a growing fear; the fear, to an anguished certainty. The first student protests are merely startled and annoyed: "Wh-wh-why, a teacher has to know—well, nearly everything! Why, a teacher would have to be better educated than almost anyone else!" As the protests become more articulate, grief, disillusion, and pain appear in voice and in countenance. The students have been tricked, swindled, deceived! Teaching, the easy, common-sense occupation, turns out to be an intricate, subtle activity. Training for it is difficult and extensive. The highest type of self-disciplined personality and mentality is necessary. The vision of Elysian fields where one might live in effortless ease, passing out assignments,

policing pupils, reading papers at leisure, turns out to be a mirage! The fragrance of the asphodels fades.

Fortunately, the situation involves only a minority of prospective teachers; though in some institutions, it is an insistent and aggressive minority. The great majority who are sincerely interested in teaching are challenged by the problems and enter the difficult but interesting training program with enthusiasm. Students who find the preparation for teaching too difficult should be courteously and sympathetically guided toward other vocational or professional fields.

Discouraging effect of the narrow view upon earnest teachers, whether beginners or experienced. The young teachers going into the field should be forewarned to resist the disillusion which may result as they come into competition with experienced teachers who hold the narrower view. Good teaching is artistic and creative, requiring fine personality and skill; but it is true that far too many untrained, indifferent, in some cases lazy, dishonest individuals are teaching. At least, they draw pay as teachers. Their work is distinctly unsatisfactory. They sneer at training and decry the subtleties of teaching skill.

Teachers of this type appear in schools for different reasons. A large group will always be found in school systems where political or religious affiliations are more important than professional training and standards. These teachers are secure and defiant toward any demand for even rudimentary evidence of competence. In fact, in school systems dominated by politics, whether civil or religious, it is the earnest, competent teacher, eager for professional improvement who is in disfavor with colleagues and administration. It is a genuine menace to education and to democracy to have operating in the classrooms, stupid, incompetent, blandly dishonest individuals secure in their tenure and defiant of any demands for professional improvement or for reputable results with the children. The immediate effect is discouragement to both young enthusiastic beginner and older conscientious teacher. Each year a number of fine competent persons are either driven out of the profession or give up and fit into the groove of least resistance.

Another group of incompetents get into the profession because of the refusal of teacher-training institutions and of employing officers to establish and maintain standards of selection. Persons of obviously unsuitable personality are accepted for training, certificated, and employed. Under pressure these persons break. Defense mechanisms appear: chiefly, retreat to simple beliefs and simple skills. There is refusal to cooperate, to study, to try new methods. Children's needs are ignored; order is secured by force; sound principles are defied. Everything new is decried as "theoretical." The glaring demonstration of intellectual and emotional immaturity, not to mention instability, manifested by some experienced teachers is again a disheartening exhibit. These persons are just as dangerous to teaching as are the politically secure incompetents.

The young teacher must realize that these discouraging situations are not truly representative of the profession. These situations are dangerous, very noticeable, and get publicity. The great majority of teachers are going quietly and competently about their business, eagerly studying new developments, spending time and money freely for training which will improve professional skill.

We should note also that this difficulty is common to the professions, the ministry being, if anything, worse afflicted than teaching. In medicine, law, and engineering, there are quack doctors, shyster lawyers, incompetent technicians. Few of them, however, could maintain a high degree of security in these professions by operating on the level at which a fair number of teachers live and work.

The *basic* reason for the ease with which wholly inadequate school superintendents and classroom teachers can continue to operate is that the general public has never understood the nature of education as a social force, nor the nature of the teaching process. It has never, therefore, demanded the requisite standards of training and evidences of continued competence. Low salaries are a natural result which in turn further operate to preclude extended training. A *secondary* reason is that we have had until recently no reasonably valid methods of determining teaching competence which would convince the layman. The public often accepts and defends teaching procedures which are clearly inefficient. A *third* contributing cause which grows out of the basic one is that students come to the technical work of teacher training with a hopelessly inadequate and unbalanced background in the general liberal arts and basic sciences. The beginning of cooperation between divisions of liberal arts and schools of education is to be seen. The general education of the public is a necessary part of educational leadership. The young teacher may take part in this in numerous ways and should resist the inertia which comes from realization that the same salary—and sometimes even greater prestige—is going to a few mountebanks and charlatans in the profession who have neither training nor personality—and do not care.

The *personal characteristics of the desirable teacher*. Personality, however defined, has been substituted often for brains. It is often substituted for training. In many lines of human endeavor including preaching, salesmanship, operating confidence games, and teaching, personality with little else will carry some individuals a long way. In any technical field, however, personality alone is not sufficient. Teachers without adequate technical and philosophic background are foredoomed to mediocrity and incompetence. On the other hand, in any social science or occupation involving personal relations, personality is an important asset. Two teachers of equal intelligence, training, and grasp of subject matter may differ considerably in influence and in results achieved. Part of the difference is clearly accounted for by personality.

Many statements in the foregoing pages testify to the importance of personal leadership on the part of the teacher and to the necessity of certain personality traits in meeting pupils and parents, in diagnosing learning difficulties, in remedying emotional difficulties in pupils, and in many others. Superintendents and boards of education are increasingly interested in desirable personality as well as in background of training and of experience. Figures show that the vast majority of individuals dismissed from positions in industry are dismissed because of personality defects—for inability to get along with persons—and not for technical incompetence. No figures are available concerning teachers, but everyone can testify to the evil effect, within a group, of one or two inadequate or warped personalities and to the almost miraculous effect of a few serene, poised personalities.

A great number of studies have been made to determine the desirable characteristics of teacher personality. The opinions of superintendents and other school officers, of psychologists, psychiatrists, and personnel workers have been sought. Fellow teachers and the pupils themselves have all figured in the research. Fortunately, we need not go into detail here since a summary of all studies made before 1938 is available in *Supervision*, by Barr, Burton, and Brueckner.⁴ The same volume also contains illustrations of check lists or rating scales based upon the investigations.⁵ In studying these and other summaries of personality traits, it must be kept sharply in mind that the traits listed are abstractions. They have been derived through analysis of behavior. Adding them together will not produce a desirable personality. The integrating whole personality is more important than these abstracted parts. Various combinations produce differing but desirable personalities. The lists of traits are useful chiefly as a basis for discussion and guidance. A sample from one of the most interesting of the investigations is given below.⁶ It is based upon the opinions of 3,725 high-school seniors concerning the best-liked and least-liked teachers.

*Reasons for Liking "Teacher A" Best,
Arranged in Order of Frequency of
Mention, as Reported by 3,725 High
School Seniors*

*Frequency
of
Mention*

Is helpful with schoolwork, explains lessons and assignments clearly and thoroughly, and uses examples in teaching	1,950
Cheerful, happy, good-natured, jolly, has a sense of humor, and can take a joke	1,429
Human, friendly, companionable, "one of us"	1,024
Interested in and understands pupils	937

⁴ A. S. Barr, William H. Burton, and Leo J. Brueckner, *Supervision* (New York, D. Appleton-Century Co., 1938), pp. 358-378.

⁵ *Ibid.*, p. 443-471.

⁶ Frank W. Hail, *Teachers and Teaching* (New York, The Macmillan Co., 1934), pp. 131-132, 250-251.

Makes work interesting, creates a desire to work, makes classwork a pleasure	805
Strict, has control of class, commands respect	753
Impartial, shows no favoritism, has no "pets"	695
Not cross, crabby, grouchy, nagging, or sarcastic	613
"We learned the subject"	538
A pleasing personality	504
Patient, kindly, sympathetic	485
Fair in marking and grading, fair in giving examinations and tests	475
Fair and square in dealing with pupils, has good discipline	366
Requires that work be done properly and promptly, makes you work	364
Considerate of pupils' feelings in the presence of the class, courteous, makes you feel at ease	362
Knows the subject and knows how to put it over	357
Respects pupils' opinions, invites discussion in class	267
Not superior, aloof, "high hat," does not pretend to know everything	216
Assignments reasonable	199
Is reasonable, not too strict or "hard-boiled"	191
Helpful with students' personal problems, including matters outside of classwork	191
Dresses attractively, appropriately, neatly, and in good taste	146
Young	121
Work well planned; knows what class is to do	110
Enthusiastically interested in teaching	108
Gives students a fair chance to make up work	97
Homework assignments reasonable	96
Recognizes individual differences in ability	86
Frank, "straight from the shoulder," a straight shooter	78
Personally attractive, good looking	78
Teaches more than the subject	74
Interested in school activities	68
Sticks to the subject	53
Modern	52
Sweet and gentle	50
Pleasing voice	50
Intelligent	42
Prompt and businesslike	41
Sincere	36
Knows more than the subject	32
Has pep	31
Uses good judgment	22
Cultured and refined	20

*Reasons for Liking "Teacher Z" Least,
Arranged in Order of Frequency of
Mention, as Reported by 3,725 High
School Seniors*

*Frequency
of
Mention*

Too cross, crabby, grouchy, never smiles, nagging, sarcastic, loses temper, "flies off the handle"	1,708
Not helpful with schoolwork, does not explain lessons and assignments, not clear, work not planned	1,025
Partial, has "pets" or favored students, and "picks on certain pupils"	859

Superior, aloof, haughty, "snooty," overbearing, does not know you out of class	775
Mean, unreasonable, "hard-boiled," intolerant, ill-mannered, too strict, makes life miserable	652
Unfair in marking and grading, unfair in tests and examinations	614
Inconsiderate of pupils' feelings, bawls out pupils in the presence of classmates; pupils are afraid and ill at ease and dread class	551
Not interested in pupils and does not understand them	442
Unreasonable assignments and homework	350
Too loose in discipline, no control of class, does not command respect	313
Does not stick to the subject, brings in too many irrelevant personal matters, talks too much	301
"We did not learn what we were supposed to"	275
Dull, stupid, and uninteresting	275
Too old-fashioned, too old to be teaching	224
Not "fair and square" in dealing with pupils	203
Knows the subject but "can't put it over"	193
Does not hold to standards, is careless and slipshod in her work	190
Too exacting, too hard, gives no chance to make up work	183
Does not know the subject	170
Does not respect pupils' judgments and opinions	133
Too changeable, inconsistent, unreliable	122
Lazy, not interested in teaching	115
Not friendly, not companionable	98
Shows boy or girl favoritism	95
Dresses unattractively or in bad taste	92
Weak personality	85
Insincere	75
Personally unattractive	65
Does not recognize individual differences in pupils	64
Voice not pleasant	63

These lists are significant. Note that personality traits monopolize the top rankings after the first item which deals with teaching technique as it immediately affects pupils. Note also that the statements made by the students are specific descriptions. No one can misunderstand them. Incidentally, it is interesting to note the least specific item, "cultured and refined," a typical verbalism, is last with only twenty mentions. High-school students do not mince words. Mastery of subject matter, which is vital but badly overemphasized by specialists, ranks sixteenth in both lists.

A summary of various factors deemed necessary for success in teaching. We may now combine in one summary the various factors resulting from training, experience, and personality which seem to make for success. Many studies have been made, and again we present a sample which itself represents a composite made by analyzing 209 rating scales for teaching success.⁷

⁷ A. S. Barr and L. M. Emans, "What Qualities Are Pre-Requisite to Success in Teaching?" *The Nation's Schools*, Vol. 6 (September, 1930), pp. 62 ff.

*A Composite View of the Qualities Essential to Teaching
Success Based Upon an Analysis of 209 Rating Scales*

Frequency

I. Classroom Management (general) (7, 97, 119, 148, 152)	205
1. Attention to physical conditions	
Heat (45, 167, 171)	48
Light (68, 160, 175)	49
Ventilation (42, 145, 150)	58
2. Housekeeping and appearance of room	
(7, 97, 119, 148, 152)	173
3. Discipline (6, 137, 138, 179, 184, 188)	160
4. Economy of time (50)	34
5. Records and reports (43, 70)	67
6. Attention to routine matters (31, 162, 183, 197)	72
II Instructional Skill (general) (1, 47, 89, 118, 133, 143, 157, 198)	271
1. Selection and organization of subject-matter (4, 87, 165)	177
2. Definiteness of aim (15, 109, 161)	110
3. Skill in assignment (14, 127, 128, 174)	118
4. Attention to individual needs (26, 182)	70
5. Skill in motivating work (27, 131)	78
6. Skill in questioning (25, 194)	72
7. Skill in directing study (30, 199)	65
8. Skill in stimulating thought (49)	35
9. Daily preparation (lesson planning) (21, 52, 154, 192)	116
10. Skill in presenting subject-matter (60, 87)	54
11. Pupil interest and attention (91)	22
12. Pupil participation (56, 176)	38
13. Attitudes of pupils (75, 76, 181)	56
14. Results (in one form or another) (51, 22, 29, 41, 83, 111, 126, 140, 147, 153, 159, 189)	305
III. Personal Fitness for Teaching (general) (5, 18, 33, 88, 117, 125, 129, 142, 189)	369
1. Accuracy (carefulness, definiteness, thoroughness) (54, 180)	37
2. Adaptability (48, 65)	64
3. Attitude toward criticism	28
4. Considerateness (appreciativeness, courtesy, kindness, sym- pathy, tact, unselfishness)	145
5. Energy and vitality (53, 135, 144)	55
6. Enthusiasm (alertness, animation, inspiration, spontaneity) (23)	67
7. Fairness (sense of justice) (77, 82)	49
8. Forcefulness (courage, decisiveness, firmness, independence, pur- posefulness) (186)	5
9. Good judgment (discretion, foresight, insight, intelligence) (63)	30
10. Health (10, 187)	106
11. Honesty (integrity, dependability, reliability) (59, 120)	46
12. Industry (patience, perseverance) (39)	46
13. Leadership (initiative, self-confidence, self-reliability) (17, 57, 96)	131
14. Loyalty
15. Morality (92, 101, 123)	56
16. Open-mindedness
17. Optimism (cheerfulness, pleasantness, sense of humor, wittiness) (86, 112, 124)	54
18. Originality (imaginativeness, resourcefulness) (36, 141)	58

19. Personal appearance (8, 64, 84, 85, 106)	213
20. Posture (190)	5
21. Progressiveness (ambition) (121)	15
22. Promptness (dispatch, punctuality) (20, 98, 103)	112
23. Refinement (conventionality, good taste, modesty, simplicity)
24. Self-control (calmness, dignity, poise, reserve, sobriety) (28, 95)	83
25. Skill in expression (13, 169)	93
26. Sociality (33)	52
27. Thrift
28. Understanding of children (90)	23
29. Voice (pleasing) (11)	96
IV. Scholarship and Professional Preparation (24, 35, 38, 40, 100, 110, 130, 134, 155, 158, 163, 173, 193)	301
V. Effort Toward Improvement (32, 62, 139, 195)	98
VI. Interest in Work, Pupils, Patrons, Subjects Taught, etc. (37, 69, 72, 94, 102, 113, 172, 185)	172
VII. Ability to Coöperate with Others (9, 55, 58, 74, 93, 142, 146)	235

(The numbers in parentheses following each quality or trait refer to the number of the item in the original study.)

An observation chart for classroom use. One other exhibit is included here, though it is designed for use by supervisors in analyzing classroom practice. It is so in line with modern views and with the general theory of teaching presented in these chapters that beginning students will find it useful and provocative.

Experimental studies of teaching procedures. It is very difficult to secure reliable and valid data concerning the efficiency of a given teaching method or general pattern of instruction. The experimental factor is extremely complex, hence difficult to control. *First*, teaching is a highly variable performance. There are wide limits within which a teacher may vary her activities and yet be reasonably successful. This is natural and desirable, but makes it almost impossible to isolate any given items which will always appear in the work of good teachers, others which will always appear in the work of poor teachers. *Second*, teaching procedures not only vary greatly, but the factor of appropriateness further complicates analysis. A given activity may be quite appropriate at one time and not at another. The appropriateness of any given method or device depends upon the field within which it operates, that is, the total teaching-learning situation. The teacher's purpose, the maturity and purposes of the learners, the materials available, the policy of the school, and many other factors enter. The import of all this is that given processes may appear in the work of both good and poor teachers and be reasonably satisfactory evidences of good teaching in one situation and not in another. A *third* factor which makes comparative studies practically impossible is that different general patterns of instruction serve, in part, different purposes. It is not fruitful to compare experimentally "problem-project" methods with "recitation" methods, since

THE CHART SHOWS THE FIVE LEVELS

AN ANALYSIS CHART FOR EVALUATING SOME OBSERV-

<i>Factors</i>	<i>Inferior (1)</i>	<i>Below Average (2)</i>
A. Is there evidence of a definite and carefully planned procedure for directing learning?	An indefinite procedure for providing necessary information and material.	A definite usable plan for providing only necessary information and material.
B. Does the teacher locate quickly and correctly the necessary point of contact with the learner?	Insensitive to individual or group difficulties.	Senses the group difficulties only.
C. Does the teacher guide the learner in the solution of the difficulty?	Neglects both the individual and group difficulties.	Revises procedure on basis of group difficulties.
D. Is there evidence of desirable teacher-pupil relationships?	Absence of desirable teacher-pupil relationships.	Desirable teacher-pupil relationship present in a slight degree.
E. Is there skill in the use of the vernacular?	Inaccurate in speech or indistinct in enunciation.	Speaks correctly and distinctly, but without animation
F. Is there an established control technique?	Mechanical details overemphasized or totally neglected. No pupil initiative. Pupil initiative not balanced by social responsibility.	Mechanical details handled efficiently by teacher. Limited pupil initiative, but balanced by social discipline.
G. Is there evidence of pupil growth toward desirable and attainable goals?	Evidence of pupil growth in the acquisition of necessary information.	Evidence of pupil growth in the acquisition of necessary and supplementary information.

* Sister M. Xavier Higgins, *Reducing the Variability of Supervisor's Judgments: An Experimental Study* The Johns Hopkins University Studies in Education, No. 23 (Baltimore, The Johns Hopkins Press, 1936).

different purposes are served. A more productive method of determining the worth of general patterns is to analyze them in terms of valid psychological principles and to scrutinize the demonstrable results.

Some differences in individual abilities among teachers can be determined. An able scientific investigation of teaching efficiency by Lancelot shows that the effect of the instructional procedures of designated

OF EACH OF THE SEVEN FACTORS

ABLE FACTORS IN THE TEACHING-LEARNING ACT⁹

<i>Average (3)</i>	<i>Above Average (4)</i>	<i>Superior (5)</i>	<i>Evaluation</i>
A definite, usable plan for providing necessary and supplementary information and materials.	A definite plan to achieve desirable, attainable goals.	A definite, highly flexible plan to achieve desirable, attainable goals, and to investigate pupil needs and abilities	1 2 3 4 5 No opportunity to observe.
Senses the group and also individual difficulties.	Senses the specific pupil difficulty of group and also of the individual.	Anticipates specific pupil difficulties through evaluation of previous pupil responses.	1 2 3 4 5 No opportunity to observe.
Revises procedure on basis of both individual and group difficulties.	Provides remedial work to aid in the solution of specific pupil difficulties.	Guides pupils in thinking ways and means to solve their own specific difficulties.	1 2 3 4 5 No opportunity to observe.
Desirable teacher-pupil relationship present in a moderate degree.	Desirable teacher-pupil relationship present in a considerable degree.	Desirable teacher-pupil relationship present in a marked degree.	1 2 3 4 5 No opportunity to observe.
Speaks correctly, distinctly, and forcefully.	Speaks correctly, distinctly, with color and force.	Speaks fluently with precision, color, force, and simplicity.	1 2 3 4 5 No opportunity to observe.
Mechanical details under teacher guidance but pupil control. Marked pupil initiative balanced by social discipline.	Mechanical details under pupil guidance and pupil control. Pupil initiative and responsiveness in efficient group work.	Mechanical details under efficient pupil guidance and pupil control. Pupil initiative and control in group work.	1 2 3 4 5 No opportunity to observe.
Evidence of pupil growth in the ability to secure and to organize materials while acquiring information.	Evidence of pupil growth in analyzing problems and in locating and utilizing materials in solving problems.	Evidence of pupil growth in originating and interpreting problems and in utilizing learned technique in new situations.	1 2 3 4 5 No opportunity to observe.

teachers upon the efficiency of the pupils' later learning can be measured with some precision. Pupils who had preliminary mathematics courses with some instructors did consistently better in advanced courses than those trained by other instructors. One instructor who was a hopeless failure teaching freshmen was accidentally discovered to be the most efficient of all the group in teaching seniors.⁹

⁹ William H. Lancelot, "A Study of Teaching Efficiency as Indicated by Certain Permanent Outcomes," first essay in *The Measurement of Teaching Efficiency* (New York, The Macmillan Co., 1935)

Another set of studies directed at determining the effect of class size on learning yielded incidentally some important facts concerning teaching ability. *First*, it was clear that the classroom methods and techniques necessarily differ between large and small classes, even though the general principles are the same. *Second*, some individuals developed and utilized methods fitted to large classes, achieving as good results as did other individuals with small classes and methods applicable thereto. *Third*, and very interesting, some teachers were unable to acquire control of the methods suitable to large classes even when those methods were available. This would seem to show that there are important differences between persons in their ability to do given describable types of teaching. Some persons do suitable work with small classes but not with large; others do just as well with much larger classes. The data did not show whether those expert with large classes could teach small groups as well.¹⁰

Probably the most extensive investigation of teaching ability is Barr's effort to determine characteristic differences between good and poor teachers.¹¹ Forty-seven teachers of social studies in high school deemed to be superior, and forty-seven deemed well below average in teaching skill were studied over a long period and by means of several techniques. Detailed stenographic records were made; trained observers studied the teachers at work; various time charts were made; the teachers analyzed their own work. Practically every conceivable act and every expression of teacher and pupil were considered, about thirty-seven items in all. The following fragmentary samples are illustrative.¹²

Characteristic comments made by poor teachers but not by good teachers.
 Are you working hard? ... Aren't you ever going to learn that word? ... Anything wrong? ... Don't get too noisy. ... Don't let this go over your heads. ... Go on. ... Everyone sit up straight please ... I'm afraid you are confused. ... I shouldn't agree with you. ... Indeed. ... Speak up. ... Next topic. ... No, that's wrong. ... Yes, that's right. ... Oh, dear, don't you know that. ... Oh, sit down. ... Say something ... and so on, through nearly one hundred expressions.

Characteristic comments made by good teachers but not used by poor teachers.
 Aha, there's a new idea. ... Are you going to accept that answer? I should like more proof. ... Ask the class. ... But there is another point. ... Can you prove your statement? ... Can you supply a better word? ... Does that answer the

¹⁰ Earl Hudelson, *Class Size at the College Level* (Minneapolis, University of Minnesota Press, 1928). This study contains a summary of similar studies prior to 1928.

Dora V. Smith, *Class Size in High School English* (Minneapolis, University of Minnesota Press, 1931).

Margaret McGuire, "Experimental Adaptations of Teaching Procedures to Large Geometry Classes," unpublished material, University of Minnesota. Referred to in Hudelson's monograph, also in bulletin of the National Association of Secondary School Principals.

¹¹ A. S. Barr, *Characteristic Differences in the Teaching Performance of Good and Poor Teachers of the Social Studies* (Bloomington, Ill., Public School Publishing Co., 1929).

¹² *Ibid.*, pp. 39-48.

question?... Don't you really think you could... Give a concrete example. . . I am not quite clear on that, think a moment... I'm afraid that question cannot be settled... Let's stick to the question... Now be careful... Now where did you find that?... Probably my question was not a good one .. and so on, through a long list.

Poor teachers, almost without exception, make some form of textbook assignment; twenty-one of them merely made a page-to-page assignment; ten supplemented the textbook with questions and special topics. The majority of good teachers used some form of assignment other than the textbook assignment; seven used the problem-project assignment; and two used the unit assignment. Where good teachers did use the textbook assignment it was always supplemented by topics, questions, or references; ten, for example, used a form of running comment upon the chief topics. No good teacher made merely a page-to-page assignment.

Poor teachers made, according to the early data, far more assignments than did the good teachers, but took much less time in the making. The good teachers were evidently making fewer assignments, each one covering a topic or unit of respectable size and taking some time to develop.

Poor teachers asked more fact and fewer thought questions than did the good teachers; and they answered more questions for individual pupils. Good teachers referred more questions to the group and used pupil questions as the basis for discussion.

Naturally, there was much overlap between the activities of poor and of good teachers. Final results showed that there were no *critical* factors, that is, items which appear exclusively with either poor or good teachers. Nevertheless, there were items which did appear more consistently with one group. The good teachers were superior in:

1. ability to stimulate interest,
2. wealth of commentarial statements,
3. attention to pupil's recitations,
4. topical or problem-project organization of subject-matter,
5. well-developed assignments,
6. frequent use of illustrative materials,
7. a well-established examination procedure,
8. effective methods of appraising pupils' work,
9. freedom from disciplinary difficulties,
10. knowledge of subject matter,
11. conversational manner in teaching,
12. frequent use of pupils' experiences,
13. an appreciative attitude (as evidenced by nods, comments, and smiles),
14. skill in asking questions,
15. definite study helps,
16. socialized class procedures, and
17. willingness to experiment.

Even though no critical factors were found, the small contributing differences are significant. Teaching is a complex, variable performance, success in which is attained through the skillful combination of many subsidiary items as indicated above.

Responsibility rests with the teacher. The increasing use of diagnostic and remedial measures is significant. The increasing tendency to examine the teacher and her methods as well as the learner in cases of failure to learn indicates that the responsibility for learning rests with the teacher. One city system changed a heading on its teacher-report blank from "*Number of Pupils Who Failed*" to "*Number of Pupils Whom I Was Unable to Get Ready for the Next Grade.*" One older teacher ran her pen through the new wording, substituted the old, and indignantly notified the superintendent that she could not possibly be blamed if the pupils did not learn! She is completely out of line with modern education.

To be fair to the teacher, we must note that many pupils come to the school with past experiences and attitudes seriously inimical to learning. Environmental factors of many kinds will complicate the teachers' task. Political interference may prevent a teacher from securing reputable learning in her pupils. Some pupils may be too seriously handicapped to learn under ordinary classroom conditions. In many given situations, the teacher cannot be censured if pupils do not learn; however, granted pupils who are reasonably normal intellectually and emotionally, of reasonably good home and social background, learning will take place if the teaching is sound. A normal child who does not learn should not be failed. He and the total teaching-learning situation should be scrutinized. Teaching may be redirected so that he does learn. Granted reasonably normal conditions, the key to learning lies in the teaching. As Dewey has said, "One might as well say he has sold when no one has bought as to say he has taught when no one has learned." No matter how earnestly the teacher proceeds, how faithfully she goes through the motions of approved techniques, it is not teaching unless learning takes place.

Teacher domination versus pupil freedom. The rise of modern or progressive education precipitated a long-continued argument about domination and freedom in the classroom. Learning the fundamentals, discipline, and obedience to authority were stressed by one group; the child-centered school, freedom, creative activity, by the other. There is, as we shall see, no real opposition between these sets of terms.

Oversimplifying and exaggerating for the sake of emphasis, we may say that one group seems to believe that learning takes place only under the thumb of the teacher. Learning for them is dominated and directed by the teacher. The teacher, as the wise adult, plans the route and with varying degrees of domination or compulsion sees to it that the pupil follows that route. The cultural inheritance, organized into subjects, is the core and system of organization.

The other group seems to believe that learning will take place only if the learner is free. Remove stimulation, guidance, teacher participation; let the natural impulses of children find expression, and learning will

result. This group "views with alarm" any type of teacher participation. The needs and purposes of the learners, refined little if at all by teacher participation, are the core and system of organization.

A balanced view. The foregoing extremes are found today usually in the writings of lay critics. The professional teacher has long since achieved a view on teacher participation and pupil freedom which is practical and technically sound. This view has been stated several times in different connections in preceding chapters. The spontaneous and vivid learning purposes are to be seized. The teacher is also to set the stage and stimulate learning. The teacher is not to be at the mercy of immature purposes, but will guide learning in terms of pupil maturity and socially desirable results. As Dewey said, there is no sense in having an experienced, mature adult around if he is not to aid the less experienced, immature learner to progress.¹⁸

The real danger is not in adult participation, but in too much of it, or the wrong kind, in the undue interruption of on-going learning activities. It is very easy to interrupt and to dominate. Often, so much teaching goes on that no learning can take place. It is unquestionable, however, that wise stimulation and guidance are necessary to learning. Teacher activity is to stimulate learning activity. The nature of learning activity will then determine teacher activity.

The crux: Guidance without domination. As indicated many times in previous pages, the good teacher stimulates, encourages, participates in, guides the learning activity of the pupil. In order to guide without dominating or coercing, the teacher needs two basic bodies of knowledge with the principles and techniques derivable therefrom. She must possess a poised, integrating personality herself. She must sincerely believe in democracy.

First, a teacher must have keen, reasonably accurate insight into what is taking place within the learner. Just what is happening within the mind and emotional nature of the students? Teachers (and parents) cannot ever be successful without a considerable degree of ability to see just what understandings, attitudes, and habitual tendencies are actually being acquired by the learner. Just what happens when a pupil reads a given paragraph, sees a picture, observes at first hand slum living conditions, listens to arguments on social justice, is picked on in the kindergarten play room, is reprimanded, is praised, listens to a lecture, participates in groups containing dominant and recessive children, and so on through ten thousand specific incidents? The adult is prone to interpret what happens within the pupil in terms of what the adult wishes, hopes, demands will happen. The adult constantly interprets the inner processes of the learner in terms of his own adult reactions. The astounding unawareness manifested by some teachers of what actually happens

¹⁸ John Dewey, *Experience and Education* (New York, The Macmillan Co., 1938), pp. 33 ff

within pupils under certain teaching conditions is unbelievable to one who has not observed it. The subtle, delicate, almost uncanny insight into the minds and emotions of learners, whether children or adults, manifested by other teachers is also almost unbelievable. It is an entrancing experience to see the latter type of teacher adjust her procedures to the nuances of feeling and understanding within the learner. That is the subjective side.

Second, a teacher must have equally keen insight into the part played by the objective world of things and persons in bringing about these results within the learner, and into the effect the learner has upon the environment. The teacher who sees how various types of experience, various types of surroundings, various specific aspects of the outside environment affect learning, can then manipulate that environment to secure natural effects without domination. We need not repeat the details which were set forth in Chapter 4 concerning the process and the results of interaction with the environment.

The *third* requisite is as important as the required knowledge noted above. A balanced, integrating personality can achieve satisfactions in many ways without resorting to dominance over others. Insistence on domination nearly always results from lack of security, lack of good mental hygiene, and feelings of inferiority.

The *fourth* necessity is a sincere belief in democracy. This means that the teacher will accept the uniqueness of each individual and aid each to develop his capacities, whatever they may be, in accord with socially desirable ends and values.

More immediate principles of guidance derivable from the foregoing are listed below. The list is not exhaustive and may be amplified.

- a. Begin with pupils' own questions, problems, arguments, real-life activities; aid them in formulating their own purposes
- b. Help them to adopt the accepted purposes of their own group, eventually the desirable purposes of their own society.
- c. Allow for democratic procedure in planning, developing ways and means, choosing and carrying on activities, so that each individual can suggest plans, contribute ideas, materials, etc. The teacher as a part of the group also contributes ideas and lets pupils participate in judging her suggestions. Because of her longer view and more mature experience, she guides their purposing, planning, and activity beyond the immediate and the trivial.
- d. Welcome suggestions and build up a mutuality of purpose, aim, and morale.
- e. Make the experience so vivid and so much a part of the learners' lives that the experience itself suggests further purposes to be explored.
- f. Recognize the need for reevaluating goals and for changing them as they are approached, so that valuable guidance and growth can result.
- g. Provide opportunity for decisions to be made, allowing (within safe limits) the individual to make his own; refrain from making decisions for learners. Accept mistakes as normal.

- h. Help each individual to recognize his assets and liabilities in terms of his possible contributions to group activities, to develop accordingly, and to accept satisfactions in terms of his own level of ability.

Teaching is not a routine process: It is original, inventive, creative. Teaching is not a routine or rule-of-thumb process; it is a genuine intellectual adventure. The mechanical use of formulas and devices, slavish dependence upon methods and techniques recommended by training institutions or by fellow teachers will not beget learning. Teaching demands instead the ability to adapt boldly, to invent, to create procedures to meet the ever-changing demands of a given learning situation. Teaching demands continuous imaginative anticipation of the mental processes of others, the ability to think quickly, to phrase questions and answers so as to stimulate thinking, the ability to keep intricate and subtle learning activities organized and moving toward a desirable outcome without at the same time dominating or coercing. Teaching necessitates a broad background of technological information.

Teaching cannot possibly be done on the basis of common sense or experience alone. A surgeon could not possibly learn how to operate for appendicitis on the basis of common sense and raw experience. Engineers do not build tunnels from two sides of a mountain to meet squarely in the middle on the basis of common sense or raw trial and error. To do either of these things on the basis of common sense or experience alone would result in many deaths and in huge waste of money. These things are done successfully on the basis of lengthy, difficult, professional training which includes a period of experience under guidance. Naturally, later experience and critical analysis thereof play a large part in improving skill, but this experience and analysis are enlightened by the preparatory training in basic technology. Furthermore, there is demanded in addition the ability to make courageous adaptations of known procedures to unexpected conditions, to unusual variations, the ability to invent new procedures. So it is with teaching. A teacher can no more teach little children to read on the basis of her common sense or uncritical experience than can the surgeon operate or the engineer carry out projects. An even closer parallel can be drawn between the diagnosis of illness by the physician and the diagnosis of learning difficulty by the teacher.

How then will the actual necessary skills be developed?—largely through the resolute critical analysis of one's own experience. This analysis is possible only with teachers who see clearly that teaching is in fact dynamic instead of static, an exciting intellectual enterprise, and whose self analysis is illuminated by adequate general and technological background. Teaching more than most human activities demands the use of judgment, imagination, initiative, and enthusiasm. Particularly does it demand the use of freely working, creative imagination.

DISCUSSION QUESTIONS

The first five questions are designed to stimulate discussion among beginning students without teaching experience; experienced students may read these for general effect without stopping to answer in detail.

1. A teacher complains that her pupils are dumb. They answer in monosyllables, fail to prepare or do outside reading, turn in belated and slovenly papers. The teacher is earnest, works hard, prepares carefully, asks many questions, tries to arouse interest and enthusiasm in the pupils.

It may be, of course, that she actually has a dull group; however, what other explanations might be possible?
2. A professor describing one of his own class periods stated that a point in the lecture aroused immediate questions from the class. The students asked for information, began citing illustrations pro and con, arguing enthusiastically among themselves. "But I soon put a stop to that," said the professor. "I told them that if they wanted to talk, to talk to me...that I would not tolerate such discussions among members of the class"

Organize arguments showing that the professor was wholly, partially, or not at all right.
3. A high-school student handed in voluminous and carefully outlined book reviews. The work took a long time and was carefully done. The teacher asked the student if he had gained from the books any new ideas which he might use in his everyday affairs. He asked, in a friendly way, just what was the benefit to be derived from the lengthy outlines. The boy stared blankly and was quite disappointed in not receiving a top grade.

What made the boy feel that such reports were the proper thing?

Wherein did his present teacher probably differ from previous teachers?

What is the significance of this little story for learning and teaching?
4. Certain professors decry courses in "principles of teaching" by asking, "How can you train teachers in general?" They contend that we must train them specifically to teach English or to teach arithmetic or to teach in the kindergarten. They profess not to

On the basis of your own limited observation, what do you think about it?

Are there principles of learning and teaching which might be important at any age and in any subject? If you think not, tell why. If you

believe that there are any general principles applying to such diverse things as teaching analytic geometry and teaching first-grade reading.

think so, then describe or define or illustrate in your own words.

5. Consider two teachers, one teaching a dog to jump through a hoop and the other teaching a boy how to multiply. Grant that in each case the teaching is soundly and expertly done.

Wherein might principles and procedures be alike? Wherein widely different? (Complete answers are impossible at this stage. Valuable and preliminary analysis, however, can be made by the student.)

The following group of seven questions calls for further analysis than that demanded by the foregoing. Experienced teachers may start discussion with these.

6. A certain proportion of college professors is often heard to say, "if you know your subject you can teach it." They usually add that courses in education or in principles of teaching are useless.

Cite evidences from your own experience as a student showing the truth or error of this view.

List the probable reasons why this statement is made by those who do make it.

7. It is often said of some professors, "He is a notable scholar, he certainly knows his subject, but he cannot teach." Students phrase it, "He can't put it over."

Explain in some detail what is meant by these statements.

How do you explain such a situation?

What suggestions can you make for remedying it?

8. The graduates of a certain college possess an excellent mastery of the subject matter within their major and minor fields of study. They seem to have unlimited familiarity with and grasp of the content, both of the texts and of the lectures. These students, however, did unusually poor practice teaching. They manifested little imagination, little ingenuity, and no creativity. They were quite unable to stimulate or guide learning. Two who had taken honors in history failed miserably in teaching history in their practice period.

What explanations may be advanced? Make several points.

9. School superintendents often complain that the teachers of, say, mathematics or history whom they employ know the subject matter from A to Z, but they know little about the learners and care less. Why should superintendents complain about this?

10. A man directing athletic teams is called a "coach" instead of a "teacher." What is the difference between teaching and coaching? the likeness?
11. Why do some excellent athletes, expert performers in baseball or football, make poor coaches? Why do some mediocre players make excellent coaches?
12. Would it be best for an inexperienced teacher to begin by analyzing and/or imitating an expert teacher; by studying the nature of the learning process and method principles based thereon; by beginning to teach, thus learning by experience?

The final group of nine questions carries the discussion toward some general conclusions.

13. A pupil says he does not want to learn. Another says he will not learn. The teacher is the guide and director of learning, but is she concerned if there is no learning process going on to direct?
14. Make a list of the chief difficulties or weaknesses of teaching as you saw it in high school or college
15. Make a similar list of the chief merits and strengths of teaching as you saw it in high school or college.
16. Everyone entering teaching expects to engage in the preparation of lessons. Not everyone realizes that he will have to engage also in a large number of other activities in addition to the preparation of lessons. Make a list of important activities in which you think you may have to engage, directly or indirectly connected with teaching.
17. Someone has said, "The best teacher is she who teaches least." What does this mean? Do you agree or disagree?
18. If a teacher is concerned not with getting a student to memorize but to respond variously, what are some of the traditional teacher activities that should disappear? Some new ones that might be given a larger place, particularly in high school and in college?
19. What significance, if any, do you attach to the generally accepted view that teaching in the elementary grades, particularly in the primary, is done better than in the secondary school, and that college teaching is more poorly done than either? Make several points.
20. This course is entitled "Principles of Teaching." In many schools it is called "Methods of Teaching." What might the difference be? Why do you suppose some schools use one emphasis; some, the other?
21. There are many genuinely excellent teachers, and a large number of good average ones. Their techniques are, however, susceptible to great improvement. In addition, there are scores of genuinely poor and incompetent teachers. Why is teaching, in general, not too expertly done? Outline several methods of attack upon the problem.

EXERCISES AND REPORTS

1. A small committee should analyze a collection of studies dealing with desirable personality qualities for teachers. Construct a composite list which is compact but adequate.
2. An individual or small committee should construct a check list or rating card covering the teacher and her technique. (Students are advised that the rating of teachers in terms of a formal check list is not good practice today.

Check lists are used as diagnostic instruments and as bases for discussion. Experienced teachers cooperate with supervisors in setting up standards and lists. The construction of such a list is, therefore, a good exercise.)

3. Make a list of specific teacher and pupil activities illustrative of the general points in Sister M. Xavier's analysis chart. A small committee might do this and submit the results for class analysis. (The list will not be complete at this stage, but the attempt is a good preliminary exercise.)

4. Observe a teacher for several periods, or several teachers a few times, using the list of specific illustrative activities constructed in answer to number 3 above. Write an analytic account of the teachers' procedures in the light of the controlled observations.

READINGS

BAGLEY, William C., and KEITH, J. A. H., *An Introduction to Teaching* (New York, The Macmillan Company, 1925), Chaps. 1, 11, and 12.

BOSSING, Nelson, *Teaching in the Secondary Schools* (Boston, Houghton Mifflin Company, 1935), pp. 39-71. Very good.

BURTON, William H., *Introduction to Education* (New York, D. Appleton-Century Company, Inc., 1934). Chapter 23 traces development of general principles of method.

CHARTERS, W. W., and WAPLES, Douglas, *The Commonwealth Teacher Training Study* (Chicago, University of Chicago Press, 1929). Voluminous listing of responsibilities and activities of teachers.

FREDERICK, Robert W., RAGSDALE, Clarence, and SALISBURY, Rachel, *Directing Learning* (D. Appleton-Century Company, Inc., 1938), Chap. 1.

HART, Frank W., *Teaching and Teachers* (New York, The Macmillan Company, 1934). Interesting summary of opinions of high school seniors.

HOPKINS, L. Thomas, *Interaction* (Boston, D. C. Heath and Company, 1941), pp. 40; 141-143; 20; 33-35; 236-242.

LEE, J. Murray and LEE, DOTTIS, *The Child and His Curriculum* (New York, D. Appleton-Century Company, Inc., 1940), pp. 224-231.

SCHORLING, Raleigh, *Student Teaching* (New York, McGraw-Hill Book Company, Inc., 1940). Whole volume is of great value to beginning teachers.

UMSTATTD, J. G., *Secondary School Teaching* (Boston, Ginn and Company, 1937), Chaps. 1 and 17.

WHEELER, Raymond H. and PERKINS, Francis T., *Principles of Mental Development* (New York, Thomas Y. Crowell Company, 1932), Chap. 1.

Literary, Inspirational, and Other General Discussions of Teachers and of Teaching.

Vivid inspirational discussions of teaching and of its importance are appropriate in an introductory text to be used in a first course with students who are seeking vocational guidance. The present text is concerned with principles and techniques of teaching and with students who have presumably chosen their vocation. Training rather than guidance is the general aim. Nevertheless, general non-technical presentations about teaching, its joys and sorrows, its rewards, tangible and intangible, its moments of dull monotony, its moments of thrilling adventure, are of interest to many students on any level. The following titles are samplings of a much wider list that is available. Students may add others to the list as they discover them in their general reading.

BENSON, E. F., *David Blaize* (New York, George H. Doran and Company, Inc., 1916).

- PALMER, G. H., *The Ideal Teacher* (New York, Houghton Mifflin Company, 1910).
- PERRY, Bliss, *And Gladly Teach* (New York, Houghton Mifflin Company, 1935).
- PHELPS, W. L., *Teaching in School and College* (New York, The Macmillan Company, 1912).
- WELLS, H. G., *The Story of a Great School Master* (London, Chatto and Windus, 1924).
- , *The Undying Fire* (London, Cassell and Co., Ltd., 1919).
- WOODLEY, O. I., and WOODLEY, M. V., *The Profession of Teaching* (New York, Houghton Mifflin Company, 1917).

A Summary of the General Characteristics of Learning and Teaching

The educational literature contains several sets of "laws" of learning, or principles of learning, or of so-called general methods of learning and teaching. Each of these is based upon a psychological interpretation of what is known about learning, both the little that is known about inner processes, and the considerable amount that is known about observable, overt activities which accompany learning.

The various schools of psychological thought, however, are not mutually exclusive, nor should they be set so sharply in opposition to each other as some writers set them. Each school represents one effort by a given group of psychologists to derive facts concerning mental operations. Each makes a contribution to the total field. Conditioning, associationism, connectionism, the several field-theory interpretations (organismic, gestalt, topological) are each an honest effort to state the facts of psychology. Gates¹ has stated the point admirably:

An open-minded comparison of stimulus-response views with field theories and with various formulations of the conditioned response ideas, makes it obvious that the apparent effort of some students of education to somehow find which schemes are "all wrong" and which are "all right" is a pointless enterprise. When an educator declares, "I reject the 'atomistic' or the 'mechanistic' conception and accept the 'organismic'" or vice versa, he is probably merely making a display of superficial understanding of what these terms really mean. The practical differences between most of these "systems" of psychology have been exaggerated beyond all reason. Some of them, for example, not only harmonize with, but contain many vital suggestions for further improvements of the best and most progressive forms of education now in existence.

The opposite error, that of eclecticism, is also to be avoided. We are not merely to "take the best from each school" and add together. The contributions accepted from the various schools must be an addition to an emerging and increasingly coherent systematic core of principle. The writer prefers to use the term "characteristics" or principles in place of "laws." The majority of statements in this field are not truly laws; they are valuable general principles subject to change.

¹ National Society for the Study of Education, *The Psychology of Learning*, Forty-First Yearbook, Part II (Bloomington, Ill., Public School Publishing Co., 1942), pp. 163-164.

Summary. The salient characteristics and principles of learning and teaching developed throughout the foregoing chapters are brought together here for the sake of clarity and ready reference. The summary is not final but subject to revision by students as new research findings appear.

The Characteristics of a Learning Organism

1. *The learner is a behaving organism.* Activity is primary and continuous.
2. *The learner is a goal-seeking organism.* Activity is directed toward and controlled by purposes. The remote general purpose is to restore and maintain equilibrium and comfort.
3. *The learner reacts to whole situations or total patterns* and not to isolated or abstracted parts thereof (See note on general and special education below.)
4. *The learner reacts as a whole.* He reacts all over, intellectual, emotional, and physical reactions being simultaneous.
5. *The learner reacts in a unified way.* Unless interference occurs, his total reaction, intellectual, emotional, physical, is coordinated and integrating toward achievement of purpose.

The Characteristics of Learning Processes and Products

General definition. Learning is the process of acquiring useful responses and controls of response through experiencing them.

1. *The learning process is experiencing, reacting, doing, undergoing.* Scores of different learning activities are utilized.
2. *The learning products are responses and controls of response,* values, understandings, attitudes, appreciations, special abilities, skills.
3. *The learning process proceeds best when the numerous and varied activities are unified around a central core of purpose,* when the learner's interest is in the activities and products, when the learner identifies himself with the purpose through originating or accepting it.
4. *The learning products accepted by the learner are those which satisfy a need, which are useful and meaningful.* Learning products which are extraneous to need and purpose are either rejected or learned only superficially. (Actually they are not truly learned at all.)
5. *The learning process proceeds and the learner grows through continuous individuation of new patterns out of original wholes and the reintegration of the new wholes into the total personality pattern.*
6. *The learning products are perfected through a series of discrete, identifiable experiences.* The number of experiences necessary for the production of a change in the learning organism will vary from one to a great number depending upon: the type of learning, the adjustment between difficulty of learning and maturity of the learner, the relativity of the learning situation to the life of the learner, the speed with which insight develops, and many other factors.
7. *The process of organization implied in 5 and 6 may be slow and gradual, or relatively rapid, or sudden.* Good learning situations will stimulate continuous changes in the pattern of response toward an ever better organization. The better organized into systems the learning experiences are, the less likely they will be forgotten. Isolated and fragmentary items are soon forgotten.
8. *The learning products, when properly acquired, are complex and adaptable,*

not simple and static. They are transposable from situation to situation, or more simply, there is transfer of training.

9. *The learning experiences, to be of maximum value, must possess lifelikeness for the learner. They must satisfy a current purpose, be continuous with on-going experience, and be interactive with a wide and rich environment.*
10. *The learning experience, initiated by need and purpose, is likely to be motivated continuously by its own incompleteness. Further stimulation through subsidiary purposes suggested by the teacher may be necessary.*
11. *The learning process and its products are conditioned by heredity and environment.*
Hereditary factors: a plastic nervous system, glandular balance, chemical composition and secretions, the various physiological systems, organic drives, etc. Environmental factors are: the cultural heritage, the mores, customs and institutions of society, pressures of many kinds, economic status, informal educational influences, the school system, etc.
12. *The learning process and its products are affected by the level of maturity of the learner as indicated by various measures of chronological, mental, emotional, physiological, and social age; by the nature and amount of previous experience as indicated by tests of informational background, interests, needs; by fatigue, etc.*
13. *The influence of previous experience upon learning is regarded quite differently by the two major schools. The associationists stress its importance and note the value of knowing the learner's background of experience. The principle of "apperception" is important. The field-theory group places more emphasis upon the clarity and organization of the field or pattern, upon subsequent differentiation through insight. The sensible view would seem to be that both emphases are important.*
14. *The presence of many errors in a learning experience is usually though not always an indication that the experience is too difficult for the learner's level of maturity. Better pacing is needed.*
15. *The learning process and the acquisition of products are materially affected by individual differences among the learners.*
16. *The learning process proceeds best when the learner has knowledge of his status and progress. The satisfaction accruing from success, from challenge to overcome difficulties, and to rectify failure definitely aids learning. Failure imposed by others, or by arbitrary standards beyond the control of the learner, is not an educative situation.*
17. *The learning process is unified functionally, but distinguishable types of learning may be separated for discussion: perceptual, sensori-motor, memoriter, problem-solving or conceptual, affective.*
18. *The learning products are interrelated functionally but may be listed separately for discussion. Values, understandings, attitudes, appreciations, abilities, and skills are all interrelated in any one given learning product possessed by the learner.*
19. *The learning process proceeds more effectively under that type of teaching which guides and stimulates without dominating or coercing.*

The Characteristics of the Teaching Process

General definition. Teaching is the guidance of the natural activities of the learner, and the stimulation of desired activities, directing them through educative experiences to the acquisition of socially desirable controls of conduct.

1. The teacher will aid pupils in defining their purposes; set the stage for the emergence of desirable purposes.

2. The teacher will aid pupils in distinguishing between levels and types of purposes. will aid them to choose those leading to outcomes deemed desirable by our civilization.
3. The teacher will guide or direct (sometimes) pupils in planning procedures for the achievement of their purposes. That is, she will guide or direct learners into experiences possessing maximum lifelikeness, which satisfy the selected purpose, which are continuous and interactive. Direct experiences will perform be supplemented by vicarious experiences which should be as vivid as possible.
4. The teacher will guide pupils in a sufficient number of these experiences to guarantee, as far as it ever can be guaranteed, the acquisition of desired outcomes.
5. The teacher will guide pupils into, or will provide for numerous and diverse learning activities. That is, she will provide for responses from the whole organism.
6. The teacher will aid pupils in selecting experiences fitted to their abilities, needs, interests, and levels of maturity. That is, she will adapt learning experiences to individual differences among the learners.
7. The teacher will aid pupils in discovering how to judge their own progress, and will encourage the constant self-evaluation of status and progress.

Variations in principle between general and special education. The principles of learning and teaching have been developed with special reference to general education. The learning outcomes needed by all citizens for the general purposes of living other than vocational can be acquired best, if not in fact solely, through learning situations based upon need and purpose. With immature learners, needs and purposes are clearly more important than the cultural heritage as formulated by adults, though both are essential. General education can be carried on only in terms of the developing maturity, the expanding insights of the learner. The whole purpose of general education is to develop the powers and abilities of the individual, to *introduce* him to the cultural heritage. The purpose of general education is not served by forcing the cultural heritage upon learners without regard for the level of maturity, for the great and numerous individual differences among learners.

General education, however, is not the whole story. Success in earning a living demands scores of specialized learnings. Innumerable values, understandings, attitudes and appreciations, abilities and skills must be acquired not for the general activities of life but for the specialized processes of a trade, technical or professional pursuit. The process of acquiring these latter may and does differ in important respects from that of acquiring the more general learning outcomes.

In the *first* place the learner ready to specialize has arrived at the higher levels of maturity, his experience is broader, his insights readier and keener. He has progressed beyond the stage of motivation through simple and more immediate purposes. He can conceive or accept purposes, the realization of which is delayed, the training for which is long. In the *second* place he has, through repeated differentiation and individuation, recognized that items may be abstracted from functional

wholes and treated separately. More important, he can recognize the necessity and use of logically organized abstracted materials. These two achievements mean that the learner is now capable of learning through vicarious, particularly verbal, experience. He can generalize and transfer understandings, skills, and other learnings to new situations. He is quite capable of learning now through logically organized subject matter abstracted from the original and real situation. In fact one of the surest marks of mental maturity is the ability to learn through verbal generalizations and to transfer this learning. Only the mentally immature remain in the stage of learning through direct experience. Direct experience, the functional organization of subject matter around purposes, is necessary with beginning learners but becomes cumbersome with those of greater maturity. The unification of subject matter without regard for subject lines is a necessary organization with little children but might confuse and certainly would delay mature learners who can grasp meanings abstracted from the original setting.

Special subjects organized as separate entities are therefore natural and expected upon the upper levels. Their legitimacy in graduate and technical schools is unquestioned. The junior college and the high school need at present a mixture of general unified courses and special subjects. The increasing inclusion in high school of all the children of all the people also necessitates methods adapted to different levels of maturity. Better organization within the special subjects and better teaching in them is also emerging. A few authorities believe that the secondary program may eventually be wholly unified as the elementary program is in many places. This does not seem necessary or desirable, even if possible.

1. The principle that learning is best organized around simple and rather immediate needs and purposes, that subject lines be abandoned for a unified curriculum for immature learners, does not preclude the organization of special subjects in logical form for use by mature learners pursuing more remote life purposes.
2. The unified curriculum of the elementary school, the secondary core curriculum organized around life problems, orientation and survey courses are best suited to earlier maturity levels and for first contacts with broad general fields of human knowledge.
3. The specialized courses organized in terms of their own logic and designed to serve adult life purposes are justifiable and useful on upper maturity levels.
4. The logically formulated subject-matter fields of the adult are outcomes rather than tools or means. Learners as they progress from lower to higher maturity levels are likely to invent similar organizations of their own. Forcing adult formulations on learners in advance of maturity prevents the acquisition not merely of the facts and principles, but prevents insight into the logical organization itself. Forcing also inevitably ensures the acquisition of detrimental attitudes toward the subject, the school, and toward intellectual endeavor.

Students and teachers will eliminate much useless argument, will save time and energy, and contribute to clarification of their own thought if the distinction between general and special education, between lower and higher levels of maturity, is kept clearly in mind.

One inclusive principle. One very broad generalization will aid teachers and curriculum workers on any level; the items within any given learning situation should have some relation to each other, and all of them must be related to some whole which is the real reason for the given learning situation. This holds for all levels of general or special education.

Stated in extreme form for emphasis this means that separate, fragmentary items, be they fact or concept, have no meaning for the learner. They have, in fact, no meaning for anyone. This reemphasizes the absurdity of learning all sorts of facts and skills (dates, capitals, geographical locations, names of prominent persons, battles, successions of kings or presidents, grammar rules, and ten thousand other items) in isolation and by themselves, apart from use in meaningful situations. Valuable useful learning arises out of meaningful situations and includes relationship as among the most important outcomes.

Creativity in learning. The creative aspect of learning is prominent in field-theory psychology but discussion has been omitted deliberately here. Creativity will be treated separately in Chapter 4 of the volume of Supplementary Material.

DISCUSSION QUESTIONS

With some classes an hour can be spent in discussion based upon student questions. Clarification, amplification, and illustration will be called for by some students. With other classes the chapter may be read and passed without discussion.

EXERCISES AND REPORTS

Observe a lesson, preferably a series of lessons. Note specific evidences that the general characteristics of learning and teaching as listed in this chapter are being exemplified or violated. Prepare a detailed oral or written report.

READINGS

The recommendation of readings for this chapter is extremely difficult because students will come with such varying backgrounds in psychology. Some will have a thorough grounding in the S-R bond theory of the connectionists; others an emphasis upon conditioning; a few will have adequate knowledge of gestalt or other field-theory view. Some will come, even at this late date, equipped only with the old, static, descriptive type of psychology. Many will have had no work in psychology at all. There may be considerable confusion within the group, even discouragement over seeming conflict between authorities. It is an open question whether beginning students ignorant of the various schools should make any thorough study of them all. Doubtless there must be sufficient understanding to guarantee recognition of main points. The instruc-

tor's judgment alone can determine how much and what reading to use. Fortunately there is a veritable mine of information available in Part II of the *Forty-First Yearbook* of the National Society for the Study of Education. Advanced students and instructors will find useful also the two volumes, one by Heidebreder, one by Guilford.

The six preceding chapters will probably develop sufficient understanding for present purposes. Further readings on field-theory psychology were included at the close of Chapter 5. Readings on connectionist views were not included, since they are widely known and easily available.

Basic References

National Society for the Study of Education, *The Psychology of Learning*, Part II of the *Forty-First Yearbook* (Bloomington, Ill., Public School Publishing Company, 1942). Contains first-class explanations of the various schools by various leaders, plus a chapter on relationships between the schools. Other chapters make application to important educational problems. The single best reference available.

GUILFORD, J. P. [Editor], *Fields of Psychology* (New York, D. Van Nostrand Company, Inc., 1940). Statements by a group of leaders
HEIDBREDER, Edna, *Seven Psychologies* (New York, D. Appleton-Century Company, Inc., 1933).

Supplementary References

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COMMINS, W. D., *Principles of Educational Psychology* (New York, The Ronald Press Company, 1937), pp. 19-51, 305-346.

FREDERICK, Robert, RAGSDALE, Clarence, and SALISBURY, Rachel, *Directing Learning* (New York, D. Appleton-Century Company, Inc., 1938), pp. 46-61.

HOPKINS, L. Thomas, *Interaction* (Boston, D. C. Heath and Company, 1941), pp. 151-171.

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LEE, J. Murray, and LEE, Dorris M., *The Child and His Curriculum* (New York, D. Appleton-Century Company, Inc., 1940), Chap. 5 and the index.

National Department of Classroom Teachers (with American Educational Research Association), *The Implications of Research for the Classroom Teacher* (Washington, D. C., National Education Association, 1939), pp. 99-117.

School of Education, Northwestern University, *Educational Trends*, Vol. 6, April-May, 1938. This number of the magazine is given over to a series of articles on learning. Excellent advanced presentations by Herrick, Ogden, Bock, Plant, and others. Valuable to advanced students and to instructors.

WHEELER, Raymond H., and PERKINS, Francis T., *Principles of Mental Development* (New York, Thomas Y. Crowell Company, 1932), pp. 79-106, 122-137; Chap. 13.

WIEDERAENDERS, M. F., "A Critique of the Bond and the Gestalt Psychologies Applied to Certain Problems in Education," *Studies in the Psychology of Learning*, *University of Iowa Studies in Education*, Vol. 8 (October 1, 1933). An excellent systematic analysis. Well written and very readable.

The Organization of Teaching-Learning Situations, both Traditional and Modern¹

A teacher must have some idea of the course of events likely to occur when she steps before a class to participate in and to guide learning activities. This is true whether the teacher plans in advance or plans coöperatively with the learning group. What guidance exists for a teacher who is about to organize a teaching-learning situation?

The two general organizations for teaching, the traditional and the modern. Previous chapters have made clear that there are two broad general procedures under which detailed teaching-learning experiences may be organized: the traditional assign-study-recite-test formula, and the functional unit. The subject-matter unit is a general organization standing between these. The traditional methods still dominate the field even though there is now voluminous evidence that overwhelmingly favors the new methods. The fact that practice lags far behind the available facts should disturb no one. This is a natural phenomena in all social fields.²

The remainder of this chapter summarizes two items: the significant points in the historical development and technical background of the two procedures; and the important differences in practice under each. The subject-matter unit will be neglected for the moment to reappear in Chapters 9 and 10.

The remainder of this volume will be devoted to an exposition of the desirable current teaching practices under each of the three organizations. While evidence is clearly on the side of the experience unit, as has been said, many teachers must still teach by the older methods. Still other teachers will probably move over to the experience unit via the subject-matter unit. Effort will be made, therefore, to aid teachers or prospective teachers using either traditional or modern methods.³

¹ This chapter is a rewriting and extension of Chapter 1 in the *Twelfth Yearbook* of the Department of Supervisors and Directors of Instruction, "Newer Instructional Practices of Promise," originally prepared by the writer.

² Students who may not have done so already, should turn back and read the preface before proceeding with this chapter.

³ *Important.* Instructors should determine at this point how far to digress into study of the evidence concerning the comparative merits of traditional and modern methods. The needs of the specific group of students will be the deciding factor. The topic is so significant in both pre-service and in-service education of teachers that it should not be omitted under any circumstances. See the special note and suggested readings at the end of the chapter.

Improvements slow to come. The origin of instructional practice goes back to a past so dim and so distant that part of the story is conjectural. In the most primitive societies the arts of life were acquired through imitative play and direct participation. The learner's interest was spontaneous; his method, trial and error or trial with insight. Success or non-success was obvious. There was no need for special instructional practices designed to arouse interest, to motivate, to utilize pupil purpose, or to guide learning as it eventuated. There was no need for examinations or objective tests. The whole machinery of assignment and recitation was far removed from early real life learning situations.

Much later there arose stress on practice for the learning of complex skills. Early initiation ceremonies and, later, the introduction of written records demanded memorization. Instructional practices designed to facilitate the development of skills in isolation from use, to aid in the memorization of set material, thus came into being. *

Changing civilization, changing conceptions of the nature of society, better understanding of the nature of the learner, of his learning processes, and of his controls of conduct—all of these factors increasingly demanded the evolution of better instructional practices. The glamor surrounding older practices, the prestige of great teachers, and the sheer weight of inertia, however, prevented rapid progress. Traditional methods were refined and eventually crystallized.⁴ The work of the Committee of Ten is a case in point. The college-entrance requirements became a serious obstacle to educational progress. The vested interests of text writers, publishing houses, and the authors of special methods operated for long as stumbling blocks to progress. Latter-day text writers and publishing houses, sensitive to increasingly reliable experimental data concerning teaching and learning, have materially aided in disseminating newer practices. *

The relation of a philosophy of life and of a theory of society to instruction was to be clarified only slowly through the years. Centuries were to pass before scientific investigations were made of society, of the learner and of learning, and of the relation of these factors to instructional techniques. Many centuries were to pass before even adequate critical analyses were made of common experience. Fragmentary analyses were producing piecemeal improvements.

Important and significant improvements, of course, did appear. The theories of Comenius and of Locke, and the actual improvements made by the Christian Brothers and the Jesuits, by Rousseau, Pestalozzi, Herbart, and Froebel are too well known to need repetition here. The development of traditional methods—and the reasons for their persistence

⁴ Students may be interested at this point in reading an extremely witty satire on the stubborn persistence of worthless methods in J. Abner Peddiwell (Harold Benjamin), *The Saber Tooth Curriculum* (New York, McGraw-Hill Book Co., 1939), particularly pages 21-44.

—is a long story which has been told elsewhere with a wealth of detail. It cannot be repeated here.⁵

The improvement of traditional methods and the invention of new methods proceed concurrently. Turning to modern times and to our own schools, we find that the organization, aims, curriculum, and instructional practices have been under constant criticism, both friendly and antagonistic. This is a desirable feature of life in a democracy. The results have been two in regard to general teaching methods. *First*, many important improvements within the stereotype were achieved. *Second*, suggestions arose aimed not at the improvement of the assign-study-recite-test procedure and its details, but at the creation of basically different procedures. Both trends eventuated from our increased understanding of the nature of democratic society, increased knowledge about the nature of the learner and his learning processes, clearer views of the nature and use of subject matter, and better insight into the rôle of the teacher.⁶

This began during the late eighties and early nineties, which was the period of greatest dominance of formal methods. From that time until the present these two trends in the improvement of instructional practice can be seen side by side. Here are to be recalled the efforts of William T. Harris, first at St. Louis and later as United States Commissioner of Education, and the work of Colonel Parker at Quincy and at Chicago. The theoretical attacks of Eliot, Harper, and Dewey from 1886 to 1900 were powerful influences both for improvement of the stereotype and for the development of basically new procedures. The pedagogical discussions of William James pointed definitely toward a new basis, namely that the learner is a behaving organism. Preceding chapters of this volume have indicated much of the story from then until the present. The following paragraphs contain a compact summary of the effects of all this on instructional practice up to but not including the immediate present.

Improvements in the traditional practices. In the United States we had by 1890 set up an 8-4-4 school system with rigid gradation and pro-

⁵ Samuel C. Parker, *The History of Modern Elementary Education* (Boston, Ginn and Co., 1912). Despite the copyright date, this is still the most adequate and stimulating treatment of instructional developments from the Middle Ages up to the date of publication.

Harold O. Rugg and Ann Shumaker, *The Child Centered School* (Yonkers-on-Hudson, N. Y., World Book Co., 1928).

Harold O. Rugg, *American Life and the School Curriculum* (Boston, Ginn and Co., 1936).

V. T. Thayer, *The Passing of the Recitation* (Boston, D. C. Heath and Co., 1928). One of the significant books of the period.

William H. Burton, *Introduction to Education* (New York, D. Appleton-Century Co., 1934). Chapter 23 contains a very abbreviated summary.

⁶ William H. Burton, "The Problem-Solving Technique: Its Appearance and Development in American Texts on General Method," *Educational Method*, Vol. 14 (January, February, March, 1935), pp. 189-195, 248-255, 338-342. A detailed historical account of the emergence of problem-solving as a method of learning and of teaching. Shows clearly the progress of improvement. Other similar studies are needed.

motion; a curriculum greatly expanded but still formal and poorly articulated; an instructional practice greatly improved but essentially formal and repressive. The typical organization for teaching procedure was, as has been said, the assign-study-recite-test formula.

The curriculum. The patchwork, subject curriculum was improved through efforts at correlation, at fusion, and through the introduction of new subjects. Administrative devices affecting instruction were irregular promotions, the organization of special sections, opportunity rooms, and homogeneous grouping. Variations in load and in credit earned appeared. More pretentious curricular and administrative schemes appeared such as the Gary, the Winnetka, and the Dalton plans, and the Morrison unit organization. Integration was not yet even a slogan.

The assignment. The arbitrary designation of pages or topics to be memorized or problems to be worked was slightly improved through the Herbartian emphasis upon preparation of the class prior to giving the still formal and arbitrary assignment. Later, effort was made to find motives within pupils' interest to which to attach the subject-matter assignment. Compulsion slowly gave way to interest. Differentiated assignments, two- and three-track systems appeared. The doctrine of minimum essentials for all plus enrichment for those able to go further became popular. Problems and projects originating with the teacher appeared late in this period. Problems based on pupil purposes were being talked about.

The recitation and study periods. The formal question-and-answer recitation began to give way to certain ameliorations—for that is what they were! The socialized recitation became very popular, together with individual and group reports on related topics. Supervised study appeared and went through several stages.

Testing. The old-fashioned essay examination with indefinite questions and purely subjective marking shared the stage now with standardized objective tests. Later, home-made new-type (objective tests) enjoyed wide use. Diagnostic tests began to appear with accompanying remedial teaching. Behavior records were discussed vaguely.

Outcomes. Outcomes were stated in terms of designated segments of subject matter to be absorbed, or in levels of skill to be achieved. These were determined arbitrarily by adults with little regard for pupil capacity or maturation. Outcomes stated in terms of social competence, in terms of patterns of behavior or conduct, controls, such as understandings, attitudes and appreciations, work-study skills, ways of thinking, and personal-social adaptability, emerged only very recently. Individual differences in rate and level of achievement gained recognition slowly and grudgingly.

Unsound basis for improvements within the stereotype. The majority of improved practices until the immediate present have been within the traditional formula. The improvements have been fragmentary, incom-

plete, opportunistic, and, worst of all, uncoordinated. No adequate philosophy and science lay behind them. The stereotype and its improvements rested upon a number of erroneous principles. Society and the method of acquiring the social heritage were regarded as, if not static, at least reasonably stable. The authoritarian view of life and of society was dominant. The aim of education was preparation for adult life and the best route was through adult-organized, logically arranged subject matter to be learned under assignment. The teacher was the agent of society vested with authority to enforce its demands. The learner in the traditional school was regarded as passive and docile; learning, as additive and mechanistic.

Wrightstone's summary of principles underlying traditional practice. Wrightstone has admirably summarized the immediate implications of the older educational concepts which in turn illuminate the piecemeal nature of many improvements of traditional practice.⁷

1. The classroom is a restricted form of social life, and children's experiences are limited therein to academic lessons.
2. The quickest and most thorough method of learning lessons is to allot a certain portion of the school day to instruction in separate subjects, such as reading, phonics, word drill, language, arithmetic, history, geography, health, and stories.
3. Children's interests which do not conform to the set curriculum should be disregarded.
4. The real objectives of classroom instruction consist to a major degree in the acquisition of the content matter of each subject.
5. Teaching the conventional subjects is the wisest method of achieving social progress.

The invention of new methods: brief indication of underlying influences. The period from 1900 on, more particularly from 1917 on, has been characterized by an effort not merely to improve instructional practices, but to invent new ones. There is a deliberate, organized, critical effort to improve teaching in the light of emerging philosophic principles and scientific information. Scientific methods of research are increasingly directed toward the experimental validation of new procedures instead of toward the refinement of uncritically accepted practices. The new bases are far more valid than the principles which underlie traditional practice and which were summarized above.

The theory of society which is dominant at any time is of fundamental importance. Instructional practices cannot be selected wisely until we know what type of individual we are trying to produce and in what type of social milieu. Society is now thought of as dynamic and emergent. Change is inherent in any social order. The democratic view of life has replaced the authoritarian. Democracy means participatory group life

⁷ J. Wayne Wrightstone, *Appraisal of Newer Practices in Selected Public Schools* (New York, Teachers College, Bureau of Publications, 1935), p. 9.

within flexible, evolutionary institutions, with the common good paramount. Free participation by individuals in terms of their unique contributions necessitates the education of individuals of worth. Respect for personality becomes of dominant importance. Adaptability and creativity are desirable traits of democratic personality. An important consequence of the shift from authoritarian to democratic theory is the shift from authority to leadership. Compulsion gives way to discussion, pooling of contributions, eventuating in group decision. The aim becomes the development of personalities which can perpetuate and improve the democratic way of life. The new psychology implies that this aim may be achieved best through the stimulation of the all-around growth of the individual at all levels during his growth.

We know now that the learner is an extremely plastic behaving organism, capable of infinite variation in development. Heredity sets certain limits; but within these the total environment, with instruction a prominent feature therein, vitally conditions and very largely determines what the individual becomes. The nature and processes of maturation are important. The extent and importance of individual differences becomes clearer.

As we learned in previous chapters, the plastic behaving organism reacts as a whole to various aspects of the environment and not with discrete intellectual, emotional, and physical responses to selected single items in the environment. The process of learning is continuous, interactive experiencing with the environment and with other persons.

The implications of these new principles are revolutionary. They have had, in fact, revolutionary effect upon instructional procedures. The school becomes an active factor in sustaining and continuing the natural integration of the learner. The curriculum heretofore largely concerned with the cultural heritage, and almost divorced from the life and problems of the community, now tends to unify these two. The subject matter and problems for study originate in the life of the community. The organized subject matter of the past is drawn upon as needed to give insight into current problems. Logically organized subject matter is considered a product of mature achievement rather than as an end in itself. Learning activities originate in the needs of the learner.

Instructional practice unifies the purposes of society and the purposes of the learner. Instruction is aimed at developing independence in the use of sources, in the making of decisions, in the choosing of values, and in the solving of problems. The recognizing and stating of problems, the originating of materials and solutions, will all become concerns of instruction. The making of choices on the basis of fact and creative thinking instead of upon prejudice, tradition, emotion, or authority becomes an important outcome.

*Wrightstone's summary of principles underlying the new practices.*⁸

⁸ J. Wayne Wrightstone, *op. cit.*, p. 10. ✓

This summary was prepared to contrast with the one quoted above.

1. The classroom is a form of democratic social life and the children re-construct their experience therein.
2. These experiences grow from the children's social activities, and various parts of the newer type of curriculum are integrated around a central problem suggested by the children's social activities.
3. The organization of the curriculum for integration of pupil personality is paramount to traditional and formal organization of subject matter.
4. A dynamic organismal-environmental concept of learning is preferable to a mechanistic stimulus-response concept.
5. A pupil's interests are viewed as signs and symptoms of growing powers and abilities.
6. Interests and powers are developed by activities, and not alone by passive assimilation of knowledge.
7. A mastery of principles and practices of intelligent living is more important than memory of specific facts.
8. Each pupil personality is inherently social in origin and character.
9. The true unit of educated experience is a realistic study of a problem and a cooperative creative solution.
10. Education is the foundation upon which social progress and refinement are based, and consequently education must concern itself with vital problems in the world of both child and adult.

New procedures emerge. The influences and discoveries so briefly hinted at in the preceding paragraphs had a profound effect upon the educational system of the United States, and more recently upon that of other countries.

A new basic concept of the organization of teaching-learning situations. First and foremost, the assign-study-recite-test formula is being replaced by an organization based on the concept of functional learning. The terms "project," "activity," "center of interest," and "enterprise" mark the progress toward the newer conception. The actual organization itself is usually called the unit of work, or unit of experience, or experience unit. It originates in and finds its organizing principle in a bona fide purpose of the learner. The dynamic experiences of children are the basis of unity. The teacher will aid pupils in selecting purposes which are socially significant. The elements in the new procedure are the initiation or approach, the working period, the demonstration of learning phase. These are not fully sequential as in the older organization—demonstration of learning or evaluation, for instance, being continuous and simultaneous with the other aspects.

It is sometimes objected that a unit of work can be as stereotyped and as dead as the assignment-recitation procedure. That is the fault of the person operating the procedure and not of the procedure. Similarly, the older procedure can be very lively and functional in the hands of an expert teacher. Terminology, however, is not the important thing. The term "unit of work" or "of experience" is used because it is etymologically correct and because it supplies a usable shorthand description. The

term may be avoided by any who do not like it. The instructional practice indicated by the term need not become formalized and will not if the full implications of the new term and the underlying principles are understood.

Functional learning translated into practice means that the child pursues worth-while purposes and becomes an active, responsible participant in his own education. It means also that while the general possibilities of a given learning situation can be outlined in advance, the details must be planned as the experience develops. The procedure is dynamic and flexible. Selecting and defining purposes, selecting and devising means and materials, seeing relationships, projecting consequences, devising checks upon proposals and upon achievements become prominent learning activities. It is only thus that practice may be had in the abilities necessary in real life. Reading, listening, memorizing are supplemented by a very large number of far more important learning activities. Practice or drill enters but under significantly different motivation: need—in place of compulsion.

The curriculum The scope and sequence of the curriculum is not determined in modern schools by a series of compartmentalized subjects, but increasingly by some statement of social functions or life needs of individuals. The core curriculum, which was originally defined in terms of required subject matter, is increasingly stated in terms of desired experiences.

The special subjects, which appear in the upper levels where there is legitimate need for them with pupils mature enough to handle them, differ in organization from those in earlier curriculums. Some of them are in improved logical organization and others are thrown into a series of functional units with relationships to other subjects and to the core indicated. The importance of social aspects is emphasized. More emphasis is placed upon intensive study of representative principles or periods, and less upon superficial extensive coverage. These special subjects may or may not be functional in terms of immediate living. They serve the legitimate long-term needs of college preparation, vocational preparation, various special interests and abilities. The unplanned curriculum has been advocated but does not seem sound in the light of modern principles. It is better to have a broad, general scope and sequence within which teachers and pupils may work out competent functional learning activities.

Administrative devices for the grouping and progress of pupils are being devised to facilitate the so-called no-failure program. A better name is probably the continuous-progress program, since the aim is to provide for regular and continuous development of the learner in keeping with his natural growth processes. Readiness to learn becomes an important principle. Various levels of need are to be met within each grade level. Books, materials, and experiences of various types now appear in each

grade instead of having one text or set of materials confined to a particular grade. The strictly prescribed grade standards of achievement applied rigidly to all alike are being eliminated as fantastic and absurd. Standards of achievement in terms of ability, maturity, previous life experience are being carefully organized as directional progress goals.

The assignment replaced by pupil purposes. Traditional assignments are being replaced by the utilization of pupil purposes. All pupils have purposes which precipitate activity, and these drives may be seized upon by the teacher. The teacher is increasingly sensitive to emerging purposes, and must sometimes set the stage to cause the emergence of a desired purpose. Greater insight into individual differences has stimulated the development of many different approaches to the same problem. The initiation of purposeful units is an intricate and varied process. It is elaborated later in the chapter on units. It is superior to the assignment process.

The study-recitation periods replaced by a work period. Modern practice invites pupil participation in planning what to do and how to do it. Committee work, individual and small group undertakings, reports, construction projects, interchange of opinion through group discussion, and the myriad other activities mentioned in an earlier chapter are all arranged and carried on within the large purpose. The periods and time allotments of the daily program differ materially from those of the old-style school. Longer periods of continuous but varied activity replace the shorter periods devoted to study and recitation. Special periods for certain purposes still remain.

Instead of one book many are used, supplemented by magazines, encyclopedias, pictures, and other visual materials. People, institutions, objects, and events are learning materials. Excursions, interviews, and experiments are all instructional practices with accompanying learning activity. All of these practices are manifestly far removed from assigning reading, quizzing for retention, directing formal drill, and giving examinations.

Not only are there different materials and activities, but within those materials and activities there are large differences. Not all children must do the same things in the same way, but different ones may make different contributions to the common project. This makes for a diversified working period.

Evaluating. The proof of learning is in behavior. Objective tests and limited essay examinations are giving way to observational techniques for recording behavior. Anecdotal and other itemized records are increasingly being used. Inventories, check lists, and interview techniques are utilized. Problem-situation tests are being constructed. Evaluation is regarded as a part of instruction and as continuous. It is not a separate affair placed at the end of the learning sequence. The new-type report card with its detailed record of behavior, achievement, and personality

attributes is an important instructional instrument. It is a natural outgrowth of improved evaluation.

Outcomes. The ultimate outcome desired is an integrating personality. The immediate outcomes are increasingly stated not in terms of subject-matter mastery, but in terms of functional information, work-study skills, interests, multiple personality attributes such as understandings, attitudes and appreciations, special abilities. One no longer learns subject matter, he learns from subject matter—and other things!

Diagnosis of failure: emphasis on mental hygiene: provision for creative activity. Under the new principles diagnosis of failure and of learning difficulty has been greatly extended. This is elaborated in Chapter 18. Mental hygiene and emotional tranquillity are prominent general problems of our civilization. Newer instructional practices aim at removing causes of emotional imbalance, tension, and insecurity. This is discussed indirectly throughout this volume in relation to practically every phase. It will be summarized very briefly in the chapter on diagnosis, and references will be found there.

Creative work by pupils, which does not appear at all in the majority of traditional schools, and, in fact, was actively repressed in most of them, is prominent in the new school. Chapter 4 in the volume of Supplementary Material gives a brief resumé.

A summary contrast between traditional and modern instructional practice. The outline below summarizes in sharply contrasting form the chief differences between the older and the newer practices. For the sake of contrast the more striking differences are emphasized. The older procedure is not as stereotyped, nor the new so perfect as would appear here. Many variations of each procedure and mixtures of the two are to be found in actual practice.

The points listed under the headings of the older practice are roughly in order of progression from the badly stereotyped to the more sound.

THE ORGANIZATION OF TEACHING-LEARNING SITUATIONS

<i>The Assignment-Study-Recite-Test Stereotype</i>	<i>The Functional Organization Utilizing Pupil Purpose and Socially Significant Material</i>
I. ASSIGNMENT	I. INITIATING A UNIT
Arbitrary assignment of pages, exercises, topics, or chapters	Coöperative selection and definition of a purpose or purposes (pupil- or teacher-initiated) Pupil acceptance the important thing.
Intellectual preparation through recall of related information (Herbartian)	Coöperative organization of plan of attack
Differentiated assignments—minimum essentials for all plus enrichment—two and three-track systems	Coöperative distribution of work and contributions
Problems and projects with varied assignment	

I. STUDY

Unsupervised individual study of assigned text

Supervised study of assigned text

Unsupervised or supervised study of supplementary references

Study coach for individuals and small groups

Home rooms

Formal teaching of study procedures

III. RECITATION

Individual answers to fact questions

Individual and group reports

Socialized recitation

II. AND III. WORKING PERIOD OF A UNIT

Individuals and small committees carry on various activities. consult many printed sources, interview persons, listen to lectures, make excursions, perform experiments, hold group discussions, hear committee reports, and make analyses thereof, make original and creative contributions, gather exhibits of real materials, construct apparatus and illustrations, paint, draw, etc.

IV. TESTING

Essay tests containing arbitrarily selected questions

Standardized objective tests

Home-made objective tests

IV. DEMONSTRATION OF LEARNING

Balanced and tested essay questions with explicit methods of marking

Inventories, interviews, case studies

Problem-situation tests

Observation of behavior

Various techniques for observing and recording behavior

Anecdotal records

OTHER ASPECTS

*Traditional Instructional Practice**Modern Instructional Practice*

I. OUTCOMES

Memorization of subject matter

Repetition of formulas and recipes

Ability to follow recipes

Achievement of adult-designated levels of skill through drill in isolation from use

An integrated and integrating individual

Controls of conduct such as: Understandings, Appreciations and Attitudes, Special Abilities

Achievement of levels of skill suited to level of maturity through practice related to use and purpose

II. TESTING THE OUTCOMES

Essay tests containing arbitrarily selected questions

Standardized objective tests

Home-made objective tests

Balanced and tested essay questions with explicit methods of marking

Inventories, interviews, case studies

Problem-situation tests

Observation of behavior

Various techniques for observing and recording behavior

Anecdotal records

III. MARKING AND REPORTING OUTCOMES

Arbitrary per cents, numbers, or letters, based on arbitrary sampling of subject matter—or based on uncontrolled subjective judgment of teacher	Paragraphs descriptive of actual types of behavior, levels of skill, etc., prepared by teacher
Use of very general descriptive terms such as Excellent, Good, Poor, etc.	Printed statements, sentence or short paragraphs descriptive of actual types of behavior, levels of skill, etc., printed and arranged for checking by teacher: a behavior scale
Formal report card giving fragmentary account of subject matter achievement and practically no account of other learnings	New-type report cards giving as adequate as possible a report on various types of learning

IV. IMPROVING LEARNING

Repetition after school; more drill	Diagnostic tests and analyses
Exhortation	Remedial teaching
Scolding or other punishment	(Theoretically under expert teaching, diagnostic and remedial procedures would become less and less necessary)

V. CURRICULUM IMPROVEMENT

Determined by textbooks used or constructed by specialists	Determined by coöperative planning
Correlation of subject matter, fusion, new subjects, centers of interest	In the elementary school a unified program in the secondary school, extension of unified program in the core curriculum; fusion, new subjects
Broad field organization	Broad field organization
Better organization within special subjects; subject matter units	Functional units within the special subjects

VI. INDIVIDUAL DIFFERENCES CARED FOR

Irregular promotions	Grouping on basis of social maturity with frequent rearrangement due to flexibility in shifting individuals accompanying changes in material and method
Special sections	Disappearance of fixed, arbitrary, grade (or other) levels of achievement. Normal levels of achievement indicative of adjustment to demands of the world must eventually be achieved but at rate consistent with individual's capacity and rate of work
Homogeneous grouping on limited basis: no change in materials or methods	(This is all sometimes called the "no-failure" plan which is a very misleading term "Continuous-progress" plan is a better designation)
Opportunity rooms	New types of furniture, rooms, buildings
Special organizations touching administration, curriculum, and instructional practice: Gay (or platoon), Winnetka, Dalton	

VII. THE TEACHER

A task-setter and drill-master. (Often kindly and sympathetic but nevertheless a task-master.)	A participating guide and stimulator
--	--------------------------------------

VIII THE PUPIL

A docile performer of tasks, a follower of recipes	An active, free participator in determining, organizing, and carrying out learning situations
A failing pupil is stupid or perverse	A failing pupil needs diagnosis to discover factors interfering with normal growth

The difference between the types of practice a real and important one. Occasionally, teachers or school administrators who are wholly uninformed concerning the work they are doing will brush aside the problem of traditional versus modern methods with the assertion that no real difference exists. Some even resort to that last refuge of the incompetent thinker. "It's all theory; it won't work in practice." Nothing could be further from the truth. Quite aside from the fact that what is said not to work in practice is already working in the classrooms of hundreds of teachers, there are fundamental differences between the procedures. No mere difference between formulas is involved, no mere difference in classroom devices: the difference is basic and irreconcilable. The results achieved are of different orders though with good teachers and bright pupils there is some overlap.

The contrast can be shown in extreme form through boiling down a large amount of the previous discussion to eight simple sentences.

Traditional methods rest upon the beliefs that:

1. Society and education are static and authoritarian.
2. The learner is passive and receptive.
3. The learning process is associative or additive (the terms *atomistic* and *mechanistic* are often used).
4. The teacher is a task-setter and drill-master.

Modern methods rest upon the beliefs that:

1. Society and education are dynamic and democratic.
2. The learner is a behaving organism, an active participant in his own education.
3. The learning process is continuous, interactive, purposeful experiencing.
4. The teacher is a participating guide.

The two teaching procedures cannot possibly produce the same results. The one aims at molding individuals in conformity with a static and authoritarian society through unrelieved imposition of selected segments of the cultural heritage. The other aims at developing responsible, creative individuals who will realize their unique possibilities within a flexible, coöperatively determined society. This group will discover the cultural heritage instead of having it thrust upon them. More important, they will discover how it was produced, and hence what it means.

It goes without saying that the teacher in the modern school must be a vastly better educated person than in the old. She must know much more both of subject matter and of method, of the nature of the learner,

of his immediate environment, and of the interaction between learner and environment.

Finally, teachers should not be confused or discouraged by the fact that instructional practices change from time to time. They do not change capriciously or at random. They change continuously in an orderly, systematic, and progressive manner as new facts come to light. The successive "waves" of emphasis on new teaching procedures are not mere passing frills or new devices. New procedures are not disconnected interjections into the educational process. The various changes are built one upon another. The long succession from assignments, to problems, to projects, to activities, to units is an orderly development. Each improvement is based upon and grows out of preceding organizations. A certain index of ignorance and lack of training are the statements occasionally heard that "they are always changing things in education," "there is no sense to all this changing of methods," "I go right on teaching the old way and sooner or later they shift back and I'm in style again." The trained and intelligent teacher will scrutinize new suggestions carefully and demand proof but will gladly use improved methods just as she uses improved transportation, lighting, housing, plumbing, methods of communication, methods of food preparation, medicine, surgery, government, manufacturing and distribution and packaging of goods, and ten thousand other improvements. Individuals who assert that school curriculums and methods, alone of all human enterprises, must not progress and change may be suspected of intellectual and emotional immaturity.

School experiencing can be aligned with life experiencing. Teachers using modern methods are utilizing natural and lifelike learning processes, improving them through organization and guidance. The following table shows the relationships in brief schematic form:

THE PROCESSES OF NATURAL EXPERIENCING	THE CORRESPONDING PROCESSES IN SCHOOL EXPERIENCING
On-going behavior is in process.	On-going behavior is in process.
Behavior is interrupted, something interferes; a new need or want arises, a new venture appears. Equilibrium is disturbed	Behavior is interrupted. Pupils ask questions about their own problems, about things they do not understand or which confuse them. Pupils respond to motivations by teacher or environment.
Purposes emerge. "I must do something about this" Purposes are clarified and defined both by analysis and by experience in trying to achieve.	Problems, projects, things to do or to find out are proposed by pupils or stimulated by the teacher Purposes are defined as the initiation of a unit and clarified continuously as the unit develops.
Efforts to satisfy needs and purposes arise. Procedures emerge and are refined.	Procedures are planned and executed for carrying on the unit Procedures are refined as used.

THE PROCESSES OF NATURAL EXPERIENCING	THE CORRESPONDING PROCESSES IN SCHOOL EXPERIENCING
Increasingly intelligent behavior results. Controls emerge for further use in new situations.	Outcomes of the unit appear as controls of conduct Understandings Attitudes and appreciations Special abilities Skills

Learning does not take place at once or through one or a few experiences

Further experience is necessary.	More units, study, and practice follow.
Controls are individuated and integrated continuously through experience; facility developed subject to change.	Controls become a part of the personality; the organism has been changed; learning has taken place subject to change.
Behavior is changed; control over life situations is improved. Proof of learning is its appearance in the modification of behavior.	Behavior is changed; control over school situations and increasingly over life situations is improved. Proof of learning is its appearance in the modification of behavior.
New needs arise and the process continues.	New units arise out of old ones or out of new needs, problems, questions; the process continues.

A somewhat more detailed expression of the same general conception of life and learning is found in the chart prepared by Paul Hanna and reproduced on page 233. One or two other similar charts are available.⁹

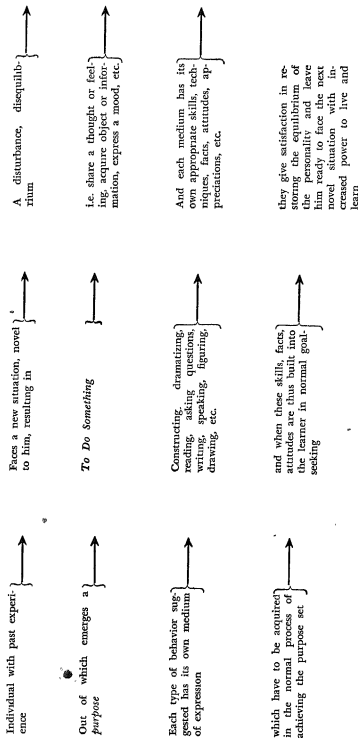
Caution concerning introduction of modern methods. Superintendents and teachers who realize the superiority of modern methods often attempt to change practice too rapidly. Teaching practices like all other, complex social techniques cannot be changed quickly and easily. Beliefs, attitudes, and particularly the habits of years do not change over night. Many communities have been antagonized by the confusion resulting from the introduction of the new before proper preparation had been made. Progress cannot be achieved in advance of public understanding and support. This is a supervisory problem, but it needs to be noted here.

A program of three years, preferably five, should be planned during which time the teaching staff and the community study the philosophy and the scientific background of old and new methods. The professional

⁹ J. Wayne Wrightstone, *op. cit.*, p. 91. Reproduced in J. Murray Lee and Dorris M. Lee, *The Child and His Curriculum* (New York, D. Appleton-Century Co., 1940), p. 204.

Many city and state courses of study published in recent years also contain illustrative charts.

A FLOW CHART OF A COMPLETE EDUCATIONAL EXPERIENCE *



* Or of a complete living experience, to be more exact. Chart prepared by Paul R. Hanna, Stanford University, in connection with a speech entitled "Living and Learning in our Modern World," delivered before the Public Education Society of San Francisco

staff will evolve a philosophy and goals of their own, and eventually a new curriculum and teaching practice. Local study is the most effective but this should be supplemented by special courses, summer workshop experience, eventually a local workshop, visits to other systems, exhibits. An outside consultant is advisable. The pupils as well must be familiarized with the new procedures since they, like the teachers, have been proceeding for years under quite different assumptions. Experiments show that it takes some time before pupils accustomed to teacher-dominated procedures and fixed assignments will fully believe that they may participate, make suggestions, express opinions, may work on things of value and interest. New administrative and supervisory policies are necessary. The community must be carried along with the program since it is fundamental that parents be informed, understand the new, and believe that they are fully in the confidence of the school leadership. Finally, the new curriculum and methods should be introduced gradually through tryouts here and there, with replanning in the light of these tryouts. Final introduction of the new on a system-wide basis should come when all have had opportunity to inform themselves, to observe, to try out under sympathetic supervision.

Criticism of modern methods and curriculums. Educational processes are under constant criticism as has been indicated in previous chapters. The war, as did the depression, has produced a sharp increase in the amount and severity of criticism. The wartime criticisms are, however, merely special instances of general criticisms which are heard continuously in peacetimes. A brief discussion of criticism of "modern" schools with emphasis upon the current wartime strictures will be both timely and of continuing value after the war.

1. A number of military and naval leaders and public figures are quoted as saying that the young men and young women entering the various services do not know the fundamental skills in arithmetic, do not spell well, and do not use correct grammatical constructions. This is merely a special instance of the general criticisms voiced for generations to the effect that children of each current younger generation cannot add, subtract, spell, read, or write as well as children of the former generation. Public officials making these criticisms now are merely repeating wearisome gossip and hearsay. The facts are flatly to the contrary. Periods of social crisis, whether of economic depression or of war, always produce a "back to the fundamentals" movement. The complete lack of fact and logic back of such movements is a perennial source of wonder to competent thinkers. Occasionally such a movement is backed by special interests which are seriously interested in limiting the education of the average citizen and in keeping certain bodies of information from citizens generally.

The adults who criticize the children do not themselves do as well in addition, subtraction, and spelling as do the children unless life occupa-

tion in particular cases demands the use of these skills. The fact is not known to the lay citizen, even though he observes it every day, that any and all kinds of skills will fade if not practiced or used continuously. Many high-school graduates and college students are not as facile immediately on demand with arithmetical computations and spelling and handwriting as are children. The skills, however, can be quickly reinstated. The fact that skills deteriorate with disuse has been known to teachers ever since there have been teachers, perhaps for several thousands of years. Skills once well known in elementary school and *not used regularly* in everyday life activities simply do not remain with individuals, and it is foolish to expect them to. This is true of all skills, whether of arithmetic or spelling or golf or bridge, of managing people or rearing children. Adults will always need to renew selected special skills in arithmetic, whether they go into the artillery or an airplane factory, into a bank or a butcher shop.

2. A number of military and naval leaders are quoted as saying that students entering schools for artillery, aviation, and navigation do not know the necessary higher mathematics for these branches.

This criticism is legitimate if directed at the graduates of technical schools specializing in this material. The criticism is absurd if directed at general education. The schools devoted to general, liberal, and citizenship education cannot be held for developing the specialized skills needed in specialized pursuits. This is no part of their job. If general education is to blame for not producing thousands of skilled mathematicians for artillery and navigation in answer to the sudden and special demands of war, then the schools are equally to blame for not having prepared several thousands of Americans to read and write Japanese facilely; for not having prepared tens of thousands of nurses and hospital aids; for not having prepared, as a matter of course, welders, riveters, submarine officers, and air-raid wardens.

3. A number of army officers have criticized young men, particularly those from the "modern school," as being lacking in discipline, in a sense of responsibility, and in obedience to authority. Several answers may be developed. *First*, another large group of army officers and industrialists has praised American youth for its initiative and ingenuity, for its quick adaptability, and for its willingness to take responsibility and stand up under pressure. *Second*, persons criticizing lack of discipline should be asked to define discipline. A school devoted to the development of democratic citizenship and well-rounded personality definitely will not develop individuals suited to the older type of armies. Blind, servile, and unquestioning obedience to arbitrary authority is not, and should not be, developed by modern education. *Third*, concepts of discipline and of army routine have changed constantly with the type of citizen who becomes a soldier. The new army, as a matter of fact, is attempting to develop many of the very same characteristics as is good modern educa-

tion. The new army wishes a personnel informed as to purpose and trained to intelligent obedience to responsible authority. These are also aims of modern education.

4. One prominent official at least has stated specifically that the men who received their education in the "modern" or "progressive" schools are especially poor material as soldiers. The answer to this is simple and brief. The percentage of men within the age group of the army who received any appreciable part of their education in a modern or progressive school is so infinitesimally tiny as to be insignificant.

The majority of those criticizing the schools and education practically always repeat stock clichés, practically always omit evidence, and practically always speak in sweeping generalizations. We may turn for a moment to a criticism of the army by the army. Lieutenant Colonel Phillips has the following to say:¹⁰

The only certain thing about war...is change. The innovator and the radical may be mistaken part of the time—but the traditionalist is certain to be wrong all of the time. The traditionalist is right on insisting upon the performance of certain elements....But he is merely a fool when he resists experimentation with new weapons and adoption of new tactics.

Certain individuals in every Army foresee the changes in war brought about by new weapons and new social conditions, but only rarely do these detested radicals reach high place. When they do, stupendous conquests and victories result.

It is much easier to continue doing in old age what you have learned to do in youth. Thus it is essential in armies that some method be devised by which the acceptance of change is considered normal....The officer who knows nothing about the evolution of war automatically will be suspicious of change....Our Army never has had a body of ardent professional students who were cognizant of the realities of war....There are few enough capable American military students, but even rarer is it to find one of them in an influential position where policies are made.

The views of Lieutenant Colonel Phillips are wholly in accord with the views of modern educators.

The student will recall that Chapter 4 contained considerable material bearing in general on this problem. The readings and exercises at the close of the present chapter will introduce the extensive factual literature upon which the modern school bases its procedures and results.

DISCUSSION QUESTIONS

This chapter has repeated in summary much that has appeared in various preceding chapters. It points up material which will become clearer as the student attacks the immediately following chapters and attempts to organize teaching plans of his own.

The writer has found it profitable to spend an hour in free discussion, rather than to use a set of prepared exercises. Students may be asked what new ideas were clarified by the chapter, what new ideas emerged. Explanations

¹⁰ Thomas R. Phillips, "Traditionalism and Military Defeat," *The Infantry Journal*, Vol. 48 (March, 1941), pp. 18-27.

should be given upon request. Ordinarily, students have more than enough questions of their own after reading this chapter.

EXERCISES AND REPORTS

The real applications of the summary outline in this chapter will come when students undertake to construct units or improved assignments. Analytic exercises leading toward this will be found at the close of Chapters 9, 10, and 11.

READINGS

- BURTON, William H., *Introduction to Education* (New York, D. Appleton-Century Company, Inc., 1934). Chapter 23 contains a very large amount of detail supplementing the account here. Note particularly the chart on page 634. Chapter 9 is a comprehensive summary of the influences which have brought about the various developments within the school system of the United States. Covers far more than instructional practice. Valuable because it brings into one compact, related summary many far-flung factors.
- New Instructional Practices of Promise, Twelfth Yearbook* of the National Department of Supervisors and Directors of Instruction (Washington, D. C., National Education Association, 1940).
- PEDDIWELL, J. Abner [Harold Benjamin], *The Saber Tooth Curriculum* (New York, McGraw-Hill Book Company, 1939). (See footnote 4, page 219.)
- PARKER, Samuel G., *The History of Modern Elementary Education* (Boston, Ginn and Company, 1912).
- RUGG, Harold O., *American Life and the School Curriculum* (Boston, Ginn and Company, 1936).
- , and SHUMAKER, Ann, *The Child Centered School* (Yonkers-on-Hudson, N. Y., The World Book Company, 1928).
- THAYER, V. T., *The Passing of the Recitation* (Boston, D. C. Heath and Company, 1928).

Types of Reaction to Traditional versus Modern Methods

The amount of study needed here will be determined by the background and attitude of the group. Students and teachers will fall into a number of loose general classifications on this problem.

1. Students, recently trained teachers, and older teachers who have kept up, and those who have themselves grown up in modern schools are likely to accept without question the statement that modern methods are superior. Casual readings and discussion as listed below will be of interest to this group.
2. Certain students and less well trained teachers, young or old, are likely to deny the superiority of modern methods for honest and sincere but mistaken reasons.
 - a. Some are wholly unaware that any evidence exists.
 - b. Some have had fragmentary, inadequate contacts with poor examples of modern teaching.
 - c. Some have read only popular accounts based on misstatements of fact, or humorous accounts in which facts were sacrificed for the sake of a witty remark.
 - d. Some have tried to do modern teaching without proper training for it, or under inadequate conditions, or under compulsion resulting inevitably in failure.

- e. Some seem almost to be "naturally" opposed to new methods (Such individuals are equally opposed to new ideas in politics, business, social affairs, religion, housing, clothing, manufacturing, and numerous other items.) This is not inherent, as some think, but is the result of the total of the social conditioning of the individual in question. He is conservative because all contacts and atmosphere of his home, school, church, social class were conservative. These persons are usually highly uncritical and unanalytic.

Honest opposition to modern methods is usually based on complete ignorance of the facts. Individuals in this group who are of average intelligence and who are not emotionally unstable ordinarily do not resist facts once the facts are made clear. Study of summaries and samplings of the evidence usually suffice. A portion of group *e* cannot be won over, and when this is clear, time and energy should not be wasted.

3. Certain administrators and teachers are likely to deny the superiority of modern methods for reasons which are wholly dishonest and disreputable.

- a. Politically secure individuals, or uninspired individuals on tenure do not have to be good teachers and know that they do not
- b. Lazy, indifferent individuals, and those who regard teaching as a job instead of as a crucial social responsibility are not interested in anything which disturbs their intellectual coma.

These individuals not only use very low-level teaching procedures even of the traditional type, but they defend their laziness, incompetence, and dishonesty with high-sounding nonsense about "standards" and "traditions." They speak of "time-tried and -tested methods," "discipline," "theoretical versus practical," "modern fads and frills," "new-fangled ideas," "no monkey business in our teaching—we teach 'em and make 'em like it." There is much repetition of old wheezes and stale cartoon humor about "progressive" education.

Attempts to educate this group are pretty largely futile. If they cannot be thrown out by political means, they must be endured. Practically the only successful method is to arouse the public to see that the education of their own children is being viciously perverted.

4. Certain emotionally immature individuals often oppose modern methods for various reasons. This opposition is neither honest nor dishonest because of its emotional base. Reasons for opposition are very often not seen by the individuals themselves.

- a. Some are timid, afraid to try new methods, lack confidence, are afraid of criticism during the process of learning the new. (This is an unhappy criticism of ordinary teacher training and supervision.)
- b. Some take suggested changes as personal criticisms, as insulting, as implying that former methods are all wrong. These individuals do not understand the nature of growth and development, and in addition are emotionally infantile. Opposition is usually expressed in tantrums, blustering, exaggerated criticisms, weeping.

Opposition here ranges from that based on ordinary timidity toward trying anything new, to that which is stubborn stupidity and imperviousness to fact or logic. Those in group *a* can usually be developed into competent modern teachers if they have normal initial ability and are given courteous, sympathetic education and supervision at a pace adjusted to their needs. Many in group *b* can be saved by patient, sympathetic guidance which often must be preceded by analysis of the emotional factor.

Many inhibited, frustrated, repressed individuals are greatly benefited by a change of location, of administration, of associates. These often need education in non-professional lines, the development of recreational habits, etc. The

actual neurotics, and these are numerous, need psychiatric assistance before any educational program can be undertaken. Many of these can never be developed into normal persons, let alone into good teachers. Again an aroused public opinion is probably the only means through which to safeguard the children.

Superficial acceptance of modern methods. It is important to note that some will have had the opposite experience from those listed in 2b, namely, inadequate contacts with good modern teaching, and hence approve it. Still others in direct contrast to those classified in 2e seem to accept anything new whether they understand it or not. These individuals seize eagerly upon anything labeled "modern," "new," "up-to-date," "the latest thing." Like those in 2e, these persons are uncritical and unanalytic but are gullible instead of stubbornly resistant.

An ignorant enthusiasm for modern methods is just as reprehensible as ignorant opposition. Superficial exponents of the new are just as much in need of education as are the opponents.

(Two or three religious groups oppose modern methods in education—and in many other fields—because such methods are thought to be in opposition to certain accepted religious principles. There is actually no opposition when the facts are all in, but, in any event, nothing can be done about this situation in ordinary classes.)

SPECIAL REFERENCES

- AIKIN, Wilford M., *The Story of the Eight-Year Study* (New York, Harper & Brothers, 1942). Volume 1 of the account of this famous experiment gives a quick summary of the origin and development of the study and a brief general summary of results.
- CHAMBERLIN, Dean, CHAMBERLIN, Enid, DROUGHT, Neal E., and SCOTT, William E., *Did They Succeed in College?* (New York, Harper & Brothers, 1942). Volume 4 of the account of the Eight-Year Study. Extensive, detailed summary of comparative achievements of students taught by modern and by traditional methods.
- LEONARD, J. Paul, and EURICH, Alvin C., *An Evaluation of Modern Education*. (New York, D. Appleton-Century Company, Inc., 1942). The most extensive and valuable summary available to date. Based on analysis of 154 research investigations. Extensive bibliography. Teachers should introduce this book to parent groups, women's clubs, and any groups interested in public schools.
- Progressive Education Association, *New Methods versus Old* (New York, Teachers College, Bureau of Publications, 1941). An excellent, brief summary of selected studies. Valuable for introductory or quick summary. Superseded by Leonard and Eurich.
- New York, City of, *Final Report of the Public School 500 (Speyer School) Experiment*, Publication No. 12 (New York, Board of Education, 1941). An account of experimentation with modern methods and exceptional children (slow and rapid learners).
- New York City Experiment. A six-year study involving 65,000 children in some 69 elementary schools. No final report published to date. Ten or more references to articles on page 282 of June, 1942, issue of *Review of Educational Research*. Difficult reading on advanced findings. Better for graduate students.
- WRIGHTSTONE, J. Wayne, *Appraisal of Newer Practices in Selected Public Schools* (New York, Teachers College, Bureau of Publications, 1935).
- , *Appraisal of Experimental High School Practices* (New York, Teachers College, Bureau of Publications, 1936).

- , *Appraisal of New, Elementary School Practices* (New York, Teachers College, Bureau of Publications, 1938).
- , "Measuring the Attainment of Newer Educational Objectives," *Sixteenth Yearbook* of the Department of Elementary School Principals (1937), pp. 493-501.
- , "Evaluation of Newer Instructional Practices," *Twelfth Yearbook* of the National Department of Supervisors and Directors of Instruction (1939), pp. 307-327.

DISCUSSION AND REPORTS

Simple and Introductory

1. Individuals may read and make oral class reports on Chapters 8 and 9 of Leonard and Eurich; or Chapters 5 and 6 of Aikin; or Chapter 10 of Chamberlin. Class discussion and summary.

2. Secure from the *Readers' Guide* and *Education Index* a number of references to popular articles about modern education. The following are samples: JACKSON, Margaret Weymouth, "Has Your School Gone Fancy?" *The Country Gentleman*, December, 1940, pp. 7 ff.

—, "Captive Audience," *The Country Gentleman*, January, 1941, pp. 19 ff.

CROCKETT, Ann L., "Lollipops vs. Learning," *Saturday Evening Post*, March 16, 1940, pp. 29 ff.

CHASE, Mary Ellen, "Progressive Education: Two Points of View," *The New York Times Magazine*, February 9, 1941, page 11 ff (one of two articles)

These articles and many like them are written in all honesty but abound in the most staggering misstatements of fact and violations of simple logic.

Organize a list of statements from these articles bearing upon the methods and results of modern education and then match these statements with the facts which contradict them from standard research summaries such as Leonard and Eurich, and articles appearing in lay and professional periodicals.

3. Search the files of a well-known newspaper chain which in 1942 and continuing in 1943 was carrying on an almost daily attack on modern educational methods and results. These articles and cartoons, unlike the articles cited above, make no pretense of being honest. The misstatements of fact are easily spotted by ordinarily alert high-school pupils. The falsification of facts is open and unashamed. Make a list of the chief principles of education thus attacked and match with statements of fact.

4. Search the letter columns of the *New York Times* and the *New York Herald-Tribune* during 1940-1941-1942 and continuing for controversial exchanges among readers. Both papers noted contained periodically a rather continuous series of letters and articles. This material represents the insight and information of interested citizens. Analyze as indicated above. Watch also for letters in magazines, for articles and cartoons in various sources.

5. Search leading serious magazine files since approximately January, 1941, onward for popular articles supporting modern education. These have appeared increasingly since the publication of the Eight-Year-Study results. Make a list of basic principles supported.

(Instructors may build up extensive collections of their own for use by students with questions 2-5.)

More Advanced and Extensive

1. Class will read Leonard and Eurich through rapidly. Discussion based on student questions.

2. Class will read Aikin through rapidly. Discussion based on student questions.
3. Class will read rapidly through Volume 4 of the account of the Eight-Year Study. Discussion based on student questions.
4. An alternative to any or all of the preceding three exercises: oral book reviews by student volunteers for each of the volumes or any one or two. Class should prepare for such reviews by studying table of contents and preface for each volume and by thumbing through the chapters.
5. An alternative, usable with interested and advanced groups: individual students may select individual chapters from either Leonard and Eurich or the fourth volume of the Eight-Year Study and make detailed oral reports.
6. Summarize the various articles on the New York City experiment in elementary schools.

Part II

THE ORGANIZATION OF FUNCTIONAL (EXPERIENCE) UNITS AND OF SUBJECT-MATTER UNITS

Two chapters may seem but a short span for this, the most important section of the entire volume; short as it is, this part with its exercises will require as much—if not more—time and energy for study as will any of the other parts. Furthermore, these chapters must be supplemented extensively by instructors and students through wide reading of specific unit plans and logs.

9

Types of Units

The term "unit" designates a current method of organizing teaching-learning situations. Loose usage of the term and careless interchange of words which are not synonymous—source unit, teaching unit, subject-matter unit, experience unit, center of interest, unit of work—confuse the untrained or indifferent teacher. Lazy teachers assert that there are so many definitions that no one really knows what *unit* means, hence we need not trouble to understand or use units. The trained and earnest teacher knows that the differences are almost wholly of wording; that there is wide agreement on the essence of the definition. She knows that the unit is not merely "another device," not "theoretical," not the arbitrary invention of some professor. She knows that it is, instead, the latest development in the long, orderly procession of improvements in teaching. The unit is not new in the sense that it appears on the pedagogical scene without a history. This past together with the scientific basis for unitary organization has been set forth in detail in preceding chapters. In fact, any careful student or teacher could formulate his own valid definition of the unit on the basis of this background.

General definitions. Subject-matter and experience units. The term unit is itself easily understood. It means simply oneness, wholeness, unity. Everyone agrees to this; argument begins when a basis of unity is sought. The factor determining unity in a teaching-learning situation must lie in either of two places: the subject matter or the learner.

Unity in subject matter lies in the logical arrangement of the materials around a center or core which resides within the subject matter itself. A topic, a theme, a generalization or principle, or any major and significant aspect may be used. The unity is made by and depends upon adult logic. The traditional subjects themselves came into being when mature adult scholars already well trained and informed in the given field abstracted certain materials originally functionally related in life situations and organized these abstracted items into sequences determined by the static logic of the materials themselves and not by the dynamic logic of their use. Traditional teachers who believe in the subject curriculum should be interested to note that not only was it formulated by adult experts but it was so formulated for the purpose of *preserving* the cul-

ture, not *teaching* it. No wonder immature children have difficulty with the curriculum!

The typical subjects may be broken into subdivisions such as topics, themes, principles. Subject matter is then organized around these cores in a manner that explains, clarifies, and brings understanding of the core. These organizations plus appropriate learning activities are subject-matter units.

Unity in the learner lies in the primary integration within himself and between him and his environment. This unity is furthered through life experiences organized around purposes. School experiences should be organized similarly. The details supporting this have been presented in extended form in preceding chapters and are not repeated here. Subject matter and the learning activities as well are selected not in terms of the material itself but in terms of the needs and purposes of the learner, and for the purpose of satisfying need or achieving purpose. The achievement of worth-while purposes will also achieve socially desirable learning outcomes. Furthermore, materials and purposes are selected as the need or purpose develops. Organizations of this type are experience units.¹

The writer has found that students' understanding is aided at this point through notation of one important difference between the types of unit. The subject-matter unit can be prepared in some detail in advance of use in the classroom. The experience unit develops as it goes and can be described only after it has taken place, or in running account as it takes place. There is, of course, necessary preplanning of possible materials and activities, of possible ways in which the experience may develop. The distinction should be grasped readily on the basis of the psychological materials in the preceding chapters. The following chapter (10) is devoted wholly to the planning of units by the teacher and learner.

A subject-matter unit is an arrangement of subject-matter materials around a central core found in the subject-matter itself, to be studied by pupils for the purpose of acquiring learning outcomes derivable from experiences with the subject-matter.

An experience unit is a series of educative experiences organized around a pupil purpose, utilizing socially useful subject matter and materials, resulting in the achievement of the purpose and in the acquisition of learning outcomes inherent in the experience.

The log of a unit is a written account or diary of the learning experience as

¹ Billett, following Morrison, defines the *unit* as the change brought about within the learner, added understanding, improved attitude, increased skill, etc. (Roy O. Billett, *Fundamentals of Secondary School Teaching* [Boston, Houghton Mifflin Company, 1940], p. 464.) He uses the term *unit assignment* to refer to the sequence of activities through which the desirable learning outcomes are achieved. Morrison's views on unit organization and unit outcomes exercised very great influence from 1926 on, but this particular definition of unit as outcome has never been widely accepted by other writers. All agree on change in the behavior of the learner as the important outcome.

it actually developed. It should be written up as the unit proceeds rather than after the unit has been completed. Analysis of logs will contribute to the improvement of units yet to be developed; will serve as a basis for evaluating the total conduct of the learning experience in the light of its purpose, its adjustment to individual differences, its actual demonstrable outcomes. Analysis of logs contributes significantly to needed changes in the curriculum pattern. Logs may or may not follow the outline pattern used for planning the unit originally.

The *outcomes* of units or unitary learning are understandings, attitudes, appreciations, abilities, skills, or series thereof. These are wholly different from such outcomes as memorized subject matter, mastery of isolated skills, repetition of definitions or formulas. These latter result from "covering the text," memorizing the material, drill, and other formal methods. The former result from interaction between an individual with a purpose and socially significant materials and other aspects of the environment.

The subject-matter unit assumes and relies heavily upon considerable automatic transfer of training. The experience unit aims at functional acquisition of learning products, which is in itself one method of securing transfer, and also utilizes other methods for the same end.

We will examine, shortly, some subject-matter units, some typical teacher plans for unit teaching, and some logs of experience units.

Distinction between subject-matter units and experience units in part arbitrary but necessary. It must be apparent to the careful student that any and all types of units use both subject matter and experiences. This is correct. Contrary to superficial criticism, the modern school with its experience units uses far more and better subject matter, and uses it more effectively, than does the traditional school. Experience units draw heavily upon many diverse sources of typical subject matter. Again contrary to superficial criticism, the traditional school with its assigned subject matter utilizes experiences. Everything one does is experiencing. All learning activities even though meager and formal are experiences. The subject-matter school is an experience school; the experience school is a subject-matter school. Why then the distinction between subject matter and experience units?

The distinction is an arbitrary one accepted by educational workers for the sake of simplifying discussion. The traditional school with its assigned subject matter or subject-matter units subordinates the experiences to the subject matter. The experiences, usually few and formal—reading, listening, reciting, working examples, drilling—are for the sake of acquiring the subject matter. The whole experience is centered in and concerned with subject matter. A learning situation involving few and limited experiences dominated by the subject-matter is referred to as a subject-matter unit.

The modern school with its emphasis on the acquisition of personal-social-moral traits and integration subordinates the subject matter to the functional learning experiences. The numerous and varied learning experiences are for the sake of acquiring controls of conduct. The whole experience is centered in and concerned with integration of personality.

Subject matter is a means, not an end, as in the subject-matter unit. A learning situation dominated by purposeful learning experiences is referred to as an experience unit.

A summary of differences between subject matter and experience units.
The chief differences may be outlined as follows:

SUBJECT-MATTER UNITS:

- ...begin in the intention of adults to teach approved subject matter to pupils;
- ...are organized logically around a core within the subject matter;
- ...are prepared in advance, by a person or group already familiar with materials and their logic;
- ...
- ...are for the purpose of having the pupil acquire the logically arranged subject matter;
- ...are usually organized from simple to complex and within subject fields;
- ...
- ...are controlled by the teacher, by adult committee, by course of study;
- ...are usually centered in the past, in the "accumulated, not the accumulating" culture; little reference to present or future; reference to future usually theoretical;
- ...rely on formal methods, assignments, distinct lesson types, printed materials as chief sources, learning experiences few and formal;
- ...give all pupils the same contact with the same materials; some provision for individual differences;
- ...have fixed outcomes, known in advance, required uniformly for all learners;

EXPERIENCE UNITS:

- ...begin in the intention of the learner to achieve some purpose; to satisfy some need;
- ...are organized psychologically around a purpose of the learner;
- ...are organized as they develop by a group facing a new situation for the first time and not familiar in advance with the materials and experiences necessary in meeting the situation;
- ...are for the immediate purpose of satisfying a need of the learner and with the ultimate purpose of developing desirable understandings, attitudes, skills, etc., in the learner;
- ...are usually organized functionally and in disregard of subject lines, especially in elementary grades; often from complex to simple; (The complex urbanized, industrialized civilization within which a child lives is often more comprehensible than the simple life of primitive peoples. Child has no experience with the latter, much, with the former.);
- ...are controlled by a coöperating group of learners which includes the teacher; the course of study is utilized as needed;
- ...are usually centered in present and future; use accumulated materials from past freely in solving present problems;
- ...utilize coöperatively planned procedures suited to situation, sources in great variety, learning experiences numerous and varied;
- ...give contacts with many materials; individual differences cared for variously and automatically;
- ...do not have fixed outcomes, known in advance, and required uniformly from all learners;

SUBJECT-MATTER UNITS (cont'd)	EXPERIENCE UNITS (cont'd):
...at conclusion, evaluate through the use of formal tests of subject-matter acquisition, usually of fact or skill;	...evaluate many complex outcomes, continuously, with constant pupil participation, and through use of many instruments, formal and informal;
...close with a backward look, so-called "review," and are done with when finished.	...lead to new interests, problems, and purposes.

Special Note on Outcomes of Experience Units. The statement that experience units do not have fixed outcomes, known in advance, and required of all learners, needs careful explanation. Hopkins² phrases it thus:

In an experience unit there are no fixed learnings which are required of everyone. Since individual needs differ, since past experience is not the same for each learner, since purposes constantly shift as the experience develops, the individual must decide for himself with the aid of the group that which he wishes to accept and act upon in meeting his own needs. If there is any learning common to all pupils in all experiences, it is the process of continuous upbuilding of intelligent behavior through constant improvement of the logic of experience. This cannot be reduced to laws or to fixed items of any situation. It must be relative to individuals, to the situations which they face, and to the resources available for functional study and inquiry.

This statement startles both experienced teachers and students in training. It is correct as made, but taken out of context, without study of Hopkins's complete discussion, and without interpretation, it may lead to very undesirable consequences. *First*, many careful students and teachers who, impressed with modern methods, are about to try them, are antagonized. *Second*, many superficial teachers take the statement as an excuse for haphazard, planless activities, for omission of all standards, as an excuse for avoiding responsibility for results. The present writer suggests that the sequence and emphasis be shifted somewhat as follows:

A good experience unit will bring pupils into contact with many learning outcomes (understandings, attitudes, appreciations, skills, processes) which are controls of intelligent behavior, useful for successful living. Different individuals will acquire similar outcomes in differing degree and will acquire different outcomes from any given unit because of differing needs, interests, and capacities. Outcomes will differ from group to group due not only to differences among learners but because of differences in learning situations.

The very nature of learners, of the learning process, and of the situations within which learning takes place actually prohibits the possibility of fixed outcomes, required uniformly of all. A series of units over a period of years should, however, give all pupils opportunity to acquire those outcomes which are desirable for successful living. These outcomes will never be acquired in final and complete form but as growing, improving items. Outcomes of this type become directional progress goals.

² L. Thomas Hopkins, *Interaction* (Boston, D. C. Heath and Co., 1941), pp. 264-265.

Concerning directional progress goals Hopkins has an admirable statement:³

They are broad, flexible, but nevertheless definite and applicable principles which are guides to the actions of persons of all ages and at all times. Being principles they are amenable to revision through proved experience, but they also set limits to the process in the experiences by which their validity is established. Such directional progress goals are in sharp contrast to the fixed end or knowledge goals which all too frequently prevail in our school system.

Properly explained, the statement that there are not and cannot be fixed learnings required uniformly of all is not startling. As a matter of fact the fixed subject-matter goals required of all pupils in the traditional school are pure fiction. No teacher ever lived who secured them with pupils. In both traditional and modern schools the nature and amount of learning differ widely from pupil to pupil, from group to group. The traditional school in attempting to secure uniform learning of fixed items is proceeding in defiance of demonstrable facts about learning; the modern school with its directional progress goals tries to act in accord with the facts.

Distinction between subject-matter unit and assignment. The original meaning of "textbook" was: a source of brief compact statements in summary form which were to be amplified, extended, clarified through reading, discussion, reflection, and other activities. When learning degenerated into covering the textbook and mastering the subject matter therein, assignments naturally became fragmentary and disjunctive. Chapters within texts are too often discursive, descriptive, expository discussions of details loosely or not at all related. Assignments based on poorly organized chapters are even more fragmentary and arbitrary. Finally, assignments are often dictated by administrative necessities and not on principles of learning. Traditional assignments are usually arbitrary, fragmentary bits of material which is not unified itself.

Modern assignments, as we shall see,⁴ have been greatly improved by thoughtful teachers. Whereas traditional assignments control class work for one day, or two or three days at most, the modern assignment deals with larger and larger bodies of material and may control class work for several days or even a week or more. A series of modern assignments may be, and often is, unitary. Assignments of either type are, as a rule, shorter and take less time to complete than a unit, since the latter deals with larger bodies of subject matter and a greater diversity of learning experiences. The distinction, however, is not one of time or length; it is in form of organization. Assignments either have no organization (and this is far more common than is thought), or take their organization from the textbook or other compilation of subject matter which may or may not be unitary. Ordinarily, traditional text organizations are not

³ *Ibid.*, p. 5. See also pp. 6, 11, 13.

⁴ Chapter 11, below.

unitary. The unit, on the other hand, is a thoughtfully organized whole based upon a recognizable core. The objectives of many teachers who use subject-matter units is still the achievement by the pupils of subject-matter mastery; however, the number of teachers is steadily growing who use subject-matter units, not for memorization of subject matter but for the derivation of desirable understandings, appreciations, and other controls of conduct.

Classification of various types of units. Writers in the field distinguish and title units variously, but there is essential agreement on fundamentals. The outline below differs, therefore, only in minor matters of terminology from many other similar outlines available.

A. Subject-Matter Units

1. Topical
2. Theme, generalization, or principle
3. Survey
4. Problem

B. Experience Units

Purpose or need. All experience units are fundamentally alike being based upon a life need, purpose, problem, or interest of the learner. Written accounts of these units, however, are of two types:

1. Plan for a proposed experience unit
2. A log or account of an experience unit which has been completed.

It is important to note that subject-matter units can be selected, organized, and presented to pupils in either of two general ways. *First*, the unit may be selected and organized in advance by adults and presented to the pupils to be learned. *Second*, the unit may be selected and in part organized by the pupils. Their selection is, of course, from subject-matter alternatives; their contributions to organization, limited by subject boundaries. Good traditional teachers have been utilizing pupil participation for some time. Learning is superior because pupil interest in and identity with the unit is greater. The increasing use of pupil participation leads teachers naturally toward the superior type of experience units. Leonard calls the two types here the *traditional subject-matter unit* and the *functional subject-matter unit*.⁵

Descriptions and titles of typical subject-matter units. The competent student recognizes that the foregoing classification of subject-matter units is not a rigid one. The types are not mutually exclusive. A given unit might be either topical or survey depending upon the treatment given by the teacher. Titles aid in distinguishing types but are not unmistakable earmarks. One and the same title might even be found over a subject-matter unit and over the log of an experience unit. The distinction lies in the actual learning experience as it happens in the classroom. Fortunately, we are not primarily concerned with definitions and distinctions. The classifications are merely to facilitate dis-

⁵ J. Paul Leonard, "What Is a Unit of Work?," *Curriculum Journal*, Vol. 8 (March, 1937), pp. 103-106.

cussion. We shall be far more concerned presently with the organization and use of units regardless of type.

The topical unit is difficult to organize and is rarely well organized because the principle of unity is not a sharp one. A topic covers much ground. Because of the indefinite limits, teachers are likely to include everything in sight for fear that they commit the cardinal sin of the traditional school and "leave out necessary subject matter." During a survey of science courses in a certain area, a tabulation was made of the separate subject-matter items included under the topic "air."⁶ Over a range of several courses and individual units, practically every known item in the field of physics eventually found itself within this topic. Conversely "air" appeared as a subhead in practically every other topical unit in the field. Such topical units are obviously mere conglomerations of information thrown together by individuals who know neither physics nor the process of learning nor the principles of organization. The desirable procedure is to include that subject matter which explains and brings understanding of the topic.

Characteristic titles for topical units are:

- The Colonization of America
- The Bill of Rights in our Constitution
- The Reconstruction Period
- The Properties of Gases
- Sanitation
- Communication
- Quadratics
- The Novel
- Geography of Central America
- The South Sea Islands

The theme or generalization unit. The principle of wholeness in these units is quite clear. Clarity and unity are secured by narrowing the area very sharply. Large themes may be set up for a year or a semester. In this case, they are broken down into smaller themes for the individual unit. These units are usually reasonably well selected and organized but cover far less ground than the topical unit. Subject matter is selected to explain and support the theme or generalization or principle.

Some students are often confused because some writers use the theme as the title, whereas others use the generalization. The important thing to know is that the generalizations, and sometimes attitudes, are the learning outcomes to be derived through a study of the theme. For instance, Morrison believes that study of the theme, "Supply and Demand," might result in such generalizations as: Abundant supply causes prices to fall and thereby stimulates demand. Short supply causes prices to rise and thereby stimulates production. For the theme, "The

⁶ Wilbur L. Beauchamp, "Instruction in Science," *The Survey of Secondary Education*, Bulletin No. 27 (Washington, D. C., U. S. Office of Education, 1932), p. 20.

Coming of the Factory," such generalizations might be cited as: In primitive times, each family made all its own goods but could not make much that way. Civilization began to appear when people learned to specialize because more goods could be made. For centuries, each craftsman carried on his own specialty in his own home or shop. Nearly two hundred years ago, the invention of the steam engine and improved water mills, made possible the use of power driven machinery.⁷

The generalizations may themselves be used as unit titles as for instance: Energy in the form of waves constitutes an important means by which information is received and imparted. Chemical and physical continuance of life upon the earth is dependent upon the water cycle. Oxidation is a fundamental source of heat and other forms of energy into which man has learned to transform heat.⁸

The list of generalizations to be derived from a theme should be kept small. Only those useful for general education should be made explicit. Many teachers and courses of study list huge numbers of generalizations both broad and limited, both general and special. This is legitimate only on the advanced level of the technical school. In general education, it merely befuddles the elementary- or secondary-school pupil.⁹

Confusion sometimes results from stating a theme and calling it a generalization. For instance, Hopkins lists as generalizations: How the industrial revolution changed man's life and brought him many problems; the interdependence of modern life in contrast to the self-sufficiency of earlier civilizations; and many others. These are themes from the study of which generalizations may be drawn.¹⁰

The survey unit. The survey unit sacrifices the unity of the theme unit for the sake of range of material. It covers far more ground than the topical unit; it may even approximate a course. Hopkins believes that the survey unit despite its loose organization may be better than the other subject-matter units for the learning of subject matter. The very range will afford the alert pupil contact with many diverse materials. He may, therefore, derive many insights and understandings and see relationships between materials, may establish more contacts between subject matter and his life than he would with a narrow, even though better organized, selection.

⁷ Henry C. Morrison, *The Practice of Teaching in the Secondary School* (Chicago, University of Chicago Press, revised 1931), pp. 196, 212.

⁸ These generalizations were all taken from courses of study. Many similar illustrations can be found.

⁹ An exceptionally good list of theme units together with appropriate generalizations is to be found in *Science in General Education* (New York, D. Appleton-Century Co., 1938), pp. 64-842. Another similar treatment though the actual generalizations are not always stated is in *Mathematics in General Education* (New York, D. Appleton-Century Co., 1940), pp. 3-266.

¹⁰ L. Thomas Hopkins, *op. cit.*, p. 256. An interesting and valuable exercise will be to state a number of valid generalizations which might reasonably be expected to result from Hopkins's list of themes.

The survey courses in junior college, now beginning to appear in high schools and some of the broad field curriculums, are examples of survey unit organization. The emerging surveys of civilization, of the biological sciences, of the humanities, etc., are typical. Morrison suggests some sixteen units within a survey course to be entitled Survey of Civilization. These include: ¹¹

How Civilized Man Lived
The Brilliant Greeks and What They Did for Civilization
The Great Road Builders and Lawmakers
The Monastery and the Castle
Europe Spreading Over the Seas
From Slave to Free Man in All Ages
The Coming of Science

Typical lower-school survey units are: Indian Life, The Cave Man, Medieval Life, Life in Holland, etc. Such a unit as Plantation Life in the Ante Bellum South might be either a survey or a theme unit.

The problem unit. Unity here is determined by the problem stated. This unit is similar to the theme or generalization unit in clarity of core, in limitation of area, and in ease of selecting and organizing subject matter.

Very often, problem units are merely topic or theme units with the title thrown into problem, really question, form. The Westward Movement as topic or theme becomes How the American People Conquered the West. The list of topic-unit titles given earlier in this chapter can be translated into so-called problem units about as follows:

Why Did the European Nations Colonize North America?
Why Was the Bill of Rights not in the Original Constitution?
How Has Man Invented and Improved Methods of Communication, etc?

These are not true problems but are really questions; they are formal adult-conceived questions. A better illustration of this technique is seen in the lesson, cited in the first chapter of this book, on the teaching of the reconstruction period in American history. The problem which actually arose in that instance was How Has the United States Solved Post-War Problems in the Past? It could, however, have been turned into some such question as: Why Was The South so Resentful of the Reconstruction Period? A teacher presenting a topical unit on the geography of Africa attempted to throw in such pseudo-problems as: What Are the Surface Features of Africa? What Is the Climate of Africa? etc. She was getting little interest. At this time, the United Nations invaded North Africa. For some time following, the pupils insisted on breaking in with questions of their own such as "How can we be bogged down in the mud? It's all desert in North Africa and never rains." "It says there was snow in the Atlas Mountains in Africa. How can that be? It's all Sahara Desert." "I never knew there were

swamps in North Africa before." "Why are the Arabs trying to make so much money out of our soldiers?" "Why couldn't the English catch up with Rommel when he retreated?" The teacher finally recognized what was going on and seized upon these questions. Hardly any of the questions asked by the pupils coincided with the questions which she had prepared or which the textbook covered. In following up their questions, under teacher guidance, however, the pupils covered far more than she had planned or the textbook required. Furthermore, the work was done with enthusiasm and with very desirable results.

The unit as a significant and comprehensive aspect of the environment. This title is not included in the classification of units above. Students will meet it widely, however, in the literature. It was at one time probably the most widely known of all unit classifications stemming from the teaching and writing of H. C. Morrison of the University of Chicago. His volume on teaching contains scores of illustrative titles and is still one of the most valuable references available on subject-matter units.¹² The definition is so broad that it covers many types. It is better to regard it as a good general definition, or even general characteristic, of subject-matter units. Actual units defined thus can be understood better as topical, theme, survey, or problem units.

Descriptions and titles of typical experience units. Subject-matter units are relatively easy to identify whether in pre-planned form or in log account. Experience units, on the other hand, cannot be so easily pigeonholed since they can be seen only as they develop in actual classroom activity. The very general and very tentative pre-planning which may be done for an experience unit indicates a *proposed* and not an *actual* experience unit. In operation, such a pre-plan might turn out to be a subject-matter unit. Positive identification of experience units can be made only through examination of the unit in process or in the log account. Hence, the best illustrations are of units that have been completed. It is also valuable to indicate the titles of what might well be

¹² Morrison's volume on teaching referred to several times earlier is one of the most interesting and important volumes in the history of teaching in the United States. It introduced the subject-matter unit conception and represents clearly the culmination of the improvement of subject-centered teaching. It is still a valuable reference for secondary-school teachers who wish to break away from stereotyped assign-study-recite-test procedures but who are far from ready for advanced modern methods.

Morrison equally well represents an anticipation of many of the modern procedures. He was clearly a prophet. While his center of organization remained in the subject-matter, he demanded that the subject-matter be meaningful to the learner. He protested to determine pupil status, insisted upon improved study procedures, tested for functional learning instead of verbalism, anticipated modern marking and reporting processes. He believed in continuous progress for the learner. He believed that slow learners should not be failed or made to repeat but should be taken over the material by a new route. Other details could be cited, but this is of more interest to the historian of methodology than to teachers in training.

The volume had tremendous influence in the country and though many "practical" teachers used his procedures to perpetuate the fractionized methods of the traditional school, nevertheless, the total effect was distinctly favorable.

experience units. Good illustrations were included in the first chapter, such as:

People Who Help Us in School
How Merced Protects Our Health and Safety
The Construction of Stage Settings for the Student Written Play.

Other illustrations of actual experience unit logs include:

How Can We Keep from Being Misled by Advertisements?
How Can We Detect Propaganda in the News?
How Is Our Community Supplied with Milk?
Why Is Oakland, Where We Live, One of the Important Cities of California?
Why Do so Many People Live in the Bay Area?
How Can We Learn how to Learn?
Why Did People Come Across the Plains to Oregon in the First Place?
How Can We Understand Our Science-Centered World and Live Securely in It?
In What Ways Are Pressure Groups and Compulsions Affecting Us?
How to Get the Most for Our Money in Buying Clothing, Food, Medicine, Household Appliances?
How Can We Learn to Get Along with Other People?

One group which started off with the unit, "How Can We Detect Propaganda in the News?" changed the title as the unit developed to "What Can We Believe?" The original interest in everyday propaganda developed into interest in problems of belief in the claims of democracy in contrast to other forms of government, in the claims of ethical and religious teachings, the claims of scientific research, and so on through several major life interests.

The children in a third grade in Brockton, Massachusetts, asked a number of questions which their teacher seized and developed into a unit on What We Want to Know About Our City. In Lynn, Massachusetts, the Tercentenary Celebration of 1929 naturally stirred great interest in the schools. Many units were developed out of children's questions which led directly into study of the immediate environment.

Incidentally; one important material outcome of the Brockton study was the production by the third-grade children of "Our Story of Brockton" which was published in mimeographed form and covered one-hundred-and-twenty pages. In Lynn, the fourth-, fifth-, and sixth-grade pupils of the city, produced a series of "History Stories of Lynn" which the School Committee printed as a 252-page reader for youth in these grades. Similarly, an advanced group of students in a Middle-Western high school produced a vivid and interesting history of ancient times. This group, starting a course in Ancient History, complained constantly and bitterly about the dull dreary textbooks available. The teacher asked, partly in desperation and partly in hope that something might eventuate, why they did not write one that suited them if they did not like those available. The students accepted the implied suggestion with enthusiasm. In passing, let it be noted that the amount of subject

matter covered in these experience units was several times that which a subject-matter unit would include.

Relation of units to the course of study. A well-known story about the modern curriculum concerns the father who reported that his child had studied "Boats" from kindergarten through the third grade. He wondered if it would be possible in the fourth grade to get the child off the boat—perhaps onto a train or even a bus! Considerable confusion does result in school systems which without adequate background undertake unit teaching. The unit is treated as a novelty, merely another technique, the latest fashion. Teachers and supervisors start making units with enthusiasm but at random. There is often no consultation between grade groups. The situation is further complicated by those who interpret with narrow literalness the principle that experience units must be based on pupil needs and purposes. This may cause the same unit to appear on various levels. The total result of unorganized effort is usually a collection of units covering a wide variety of topics and problems, with no unity. Senseless repetition occurs, with omission of materials and experiences that all would agree should be common to all learners. What is needed is an overall plan.

Teachers, furthermore, are often puzzled as to where to find units, how to choose them. Heretofore they have relied for direction and for content upon the printed course of study or upon single textbooks. Under sympathetic training and supervision, they will now learn that units are not "found"; they have to be constructed. Even then, there is the question as to the relation of units to the course of study.

The use of units, either subject matter or experience, should be within the framework of a curriculum commonly agreed upon, preferably constructed cooperatively. We are not concerned in this volume with the details of determining scope and sequence of the curriculum. There are various methods of determining these which teachers will meet as they participate in reorganization programs. Curriculums without scope and sequence are advocated by some in order to give full sway to pupil purpose. Even if theoretically possible or desirable, such curriculums are quite impossible with present levels of teacher training and of materials and equipment. Suffice it to say, that it is wholly possible to have courses of study which permit and encourage the best type of experience units based on pupil purpose. It is better to have scope and sequence but to have them broad enough, general enough, and flexible enough to permit great freedom for the teacher in adapting to the needs of her class group. A good course is to aid and not to dominate a teaching situation.

A comprehensive program of curriculum reorganization and course of study development should precede the introduction of unitary teaching or be simultaneous with it. This not only prevents confusion, overlap, and omission; it is one of the best programs for the improvement

of the total teaching-learning situation and for the stimulation of professional growth in the participants.

A modern course of study differs widely from the traditional in several respects. It is not a mere outline of subject matter with a few suggestions to teachers. It is, instead, a mine of information on both subject matter and learning activities and includes lists of materials and teaching aids, diagnostic devices, and modern evaluation instruments. Modern courses often contain instructions for constructing units, outlines for units, and sometimes sample units. The most recent courses are produced not in one outlined volume but in a series of volumes, each with a unit title. The course of study is an orderly sequence of these volumes which are general sources of scores of specific units to be constructed by the teachers.

Source suggestions for units. The volumes which make up modern courses are often called "source units" or "course of study units." This term must not be confused with a subject-matter unit and an experience unit. The volumes are actually sources of units, sources of suggested approaches, materials, learning experiences which may be organized by teachers and pupils into subject-matter units or utilized within experience units as the latter develop. To avoid confusion, some school systems avoid the term "source unit" and use instead Source Suggestions.

Source-suggestion volumes are extensive collections of *possible* problems, materials, and experiences which may be organized by the teacher around either subject-matter cores or pupil purposes. The contents are so extensive and varied that a teacher cannot possibly use the material as the basis for day-to-day teaching. She will use it instead as a handbook of guidance and assistance, as a reservoir of ideas and suggestions, and as a source of many teaching plans for individual units. These source volumes are constructed usually by committees or other organizations within a curriculum program. They represent the pooled suggestions and contributions of many teachers, the results of many teaching try-outs. They should be in loose-leaf, mimeographed form and revised constantly.

The scope of source-suggestion volumes differs from system to system. Some are designed for use in one grade or at best two or three adjacent grades; others may cover four, six, or even eight grades. The latter type suggests units for different levels based on the same general theme. The illustrations in Chapter One, "Who Helps Us in School," a first-grade unit, and "How Merced Protects My Health and Safety," a fifth-grade unit, could conceivably be drawn from the same source-suggestion volume on "The Community and Its Organization." Source volumes on The Home, The Family, The Community, The Farm, Transportation, Communication, South America, Problems of Democracy, and so on, interminably, could quite well supply guidance for teaching situations suited to several levels of maturity. Biddick suggests:

These problems should, however, be such as would concern pupils of different ages and be so stated as to indicate the need of progressive development from year to year. Thus, the unit on the care of young children might begin with the problem of caring for younger brothers and sisters. The same unit could well include consideration of child care as a part-time job for girls, and on the most mature level deal with the psychology of children as a means of understanding human beings and guiding their development. The teacher using such a unit (source suggestions) would be helped to see and to assist pupils in viewing each experience in relation to the process of growth rather than as an isolated unit of work. This should make possible continuous growth without the feeling of constantly dealing with "old stuff."¹³

Outline for the construction and content of source volumes. The beginning teacher will usually not be concerned with the construction of source materials though she may be included on curriculum committees, an opportunity which would afford desirable in-service training. Experienced teachers in good systems are very likely not only to serve on committees but to find themselves chairmen of such committees and thus in position to exercise leadership in improving the course of study. Chiefly, however, teachers will be concerned with using and improving volumes of source materials. Hence, a very brief description is useful at this point.

Many school systems have worked out coöperative procedures and outlines for the construction of these volumes. Many examples will be found in the books on curriculum and on teaching. The outline below was constructed and improved by graduate classes working with the writer. No one should be required to use it. Every school faculty or curriculum committee can well afford to study several procedures, to study their own views and resources, and then to construct coöperatively an outline of their own. The outline here is but one illustration intended to show the general form and chief items of content.

It goes without saying that these source volumes must be of manageable size. They must also be written in simple non-technical language easily understood not only by experienced teachers but by reasonably well trained beginners.

OUTLINE FOR SOURCE VOLUME

Title

Placement in Area and Aspect Emphasized
Placement for Grade or Group Level

- I. *Title page, table of contents, index*, to indicate scope quickly.
- II. *General Objectives*. A brief statement of the general and more remote

¹³ Mildred L. Biddick, *The Preparation and Use of Source Units* (New York, Progressive Education Association, no date, probably 1940), pp. 15-16.

See also: I. James Quillen "Using a Resource Unit," *Bulletin* in the Problems of American Life series, published by the National Association of Secondary School Principals and the National Council for the Social Studies, Departments of the National Education Association (1942).

understandings, appreciations, attitudes, values, abilities, etc., which will be improved by this unit. This will be extremely brief and will relate this unit to the general aim as stated for the whole curriculum. The length of the list here will be determined in part by the adequacy of the statement of general aim in the curriculum handbook or introduction. In general, short lists of objectives are preferable to the longer.

- III. *Specific Objectives.* The *teachers' objectives* are listed here in the form of actual, definite understandings, abilities, attitudes, etc., which teachers may reasonably expect to achieve through classroom units based on this source volume. Facts and formal skill outcomes may be listed here also if desired, (bearing in mind that these outcomes are not primary and usually are not permanent; that a complete listing here would cover several pages). Facts are essential but subsidiary to the more important objectives. The *teachers' objectives* are translatable into desired outcomes. When achieved by the learners they become the actual outcomes. This list should be confined to a reasonably small number.

The *pupils' objectives* are not stated here but are in the teachers' plan based on this volume. Pupils' objectives are more readily stated with an actual situation under consideration. General discussion of possible pupil objectives may be included here if desired but is better implied in V and VI below.

- IV. *The Overview* The overview is a brief statement of the nature and scope of the unit. Some writers include also a justification of the unit and an explanation of its place in the total course of study, but the majority of unit makers rely upon the complete titling and the statement of objectives to make these points clear. A few writers omit the overview. One of three forms is used by those who include it.
- A. A description of the unit in running discourse.
 - B. An outline of "leads" in the form of topics, themes, or generalizations. This type of lead is found in subject-matter units and constitutes a table of contents.
 - C. An outline of "leads" in the form of actual or probable pupil questions, problems, proposals. This type of lead is found in experience units and is, at first, incomplete. The leads develop as the unit does.
- V. *Techniques for Discovering the Needs, Interests, and Problems of Individual Pupils, Groups, and the Community.* Techniques for the analysis of given groups and situations are listed here, since teaching should be based upon needs and purposes of persons, and upon conditions within the situation. (An extended discussion of these techniques is found in Chapters 20 and 21 of this volume.)
- VI. *Approaches.* Methods of initiating or approaching units are as varied as teacher ingenuity and local resources can make them. The best approaches are derived from the on-going activities of the learning group and from events in and characteristics of the immediate environment. Other approaches are based upon the legitimate stage setting or manipulation of the environment by the teacher. Many general methods should be listed here, study of which will aid the teacher in constructing the specific approaches to be used with her group.
- VII. *Learning Experiences, Subject Matter and Materials, Probable Outcomes.* The contents of this section are to aid the teacher in organizing the working periods of her specific unit. The heart of planning lies in the approach and in the development of learning experiences. The greatest possible variety of learning experiences should be listed and described here.

Subject matter and materials should be listed in as great detail as local resources indicate.

Probable outcomes may be indicated and related to the teacher's specific objectives. Some teachers and unit writers oppose listing the probable outcomes here since it seems to be repetition of the specific objectives already listed above. This is a matter of opinion, but it does seem to be of help to list the probable outcomes, especially if the columnar form of organization is used, questions in one column, experiences and materials in another, outcomes in still another. In this way, listing the outcomes is not mere repetition but is an indication of relationship between experiences and materials, and the outcomes suppose to result. This often prevents the listing of experiences and materials from which the specific objectives would not likely be derived. Actual outcomes cannot, of course, be stated in source units but must wait upon the log of a unit.

(Note Some unit outlines have a heading at this point, Ways of Drawing upon Experiences of Other Times and of Other Peoples, which includes suggestions for the use of typical subject matter, text materials, etc. This would seem to be cared for adequately without a separate heading, though it may be included by anyone.)

<i>Problems and Questions</i>	<i>Learning Experiences</i>	<i>Materials</i>	<i>Desired Outcomes</i>	<i>Bibliography</i>

VIII. *Evaluation Techniques.* These will include objective tests by name, illustrations of teacher-made objective tests, sample improved essay-type questions, behavior records, anecdotal records, observation techniques, case-study outlines, pupil records of all sorts.

Diagnostic procedures and remedial measures may be included either here or in V above.

Suggestions for cooperative and continuous evaluation of decisions, materials, processes, and results by individuals and groups will be included here. Extended discussion of this item will be found in Chapter 17.

IX. *Resources of the School System and of the Community*

- A. Visual and auditory aids of all types
- B. Music materials, songs, records, recorders, microphones, instruments
- C. Construction materials and tools; shops which can participate
- D. Exhibits, museum materials, realia of all types
- E. Community organizations, services, institutions

X. *Bibliography* This is a part of the preceding item but is listed separately for emphasis and for ready reference.

- A. For use by the teacher
- B. For use by the pupil

- XI. *Suggestions for Translating Source Materials into a Teachers' Plan.* This includes sample units of different types worked out in some detail plus description and analysis.
- XII *Leads to Other Units.* New units which will grow directly out of experiences within this one may be listed. A good unit will supply more leads to further work than can be handled.

DISCUSSION QUESTIONS, EXERCISES, AND REPORTS

Examination of Illustrative Units Imperative. Modern teacher training cannot be carried on successfully without (a) ample opportunity to observe teaching in process, either traditional or modern or both, and (b) ample opportunity to examine many assignments, unit sources, unit plans, and logs of units in printed, typed, or mimeographed form, and (c) ample opportunity to plan teaching procedures and attempt them in an apprenticeship period. These aspects go on simultaneously but may be separated for discussion. We are here primarily concerned with (b). Instructors and local workshops must build up a large collection of such materials and keep it up to date. These local collections should contain both material gathered from the field generally and that constructed by students and teachers-in-training. Various forms may be represented. A guidance form for constructing units should not be imposed on the group but determined cooperatively.

Students in training must supplement this chapter with continuous examination of units, otherwise study is a waste of time resulting not in understanding of units, but in verbalisms about units. Discussion based on questions resulting from preliminary examination of units should contribute to the desired understanding.

Sources of Units for Examination

The "source units" or source volumes are not easily available since they are usually produced by local curriculum groups for local use. Ordinarily they are not distributed commercially and can be secured only from the school systems producing them.

1. *The local collection.* Instructors and local workshops must secure an adequate sampling of source volumes from representative school systems.
2. *State, City, and County School Systems.* Teachers and students, or curriculum committees may secure samples by direct purchase. Many school systems will supply a price list. Several systems do not distribute their materials.
3. *The Preparation and Use of Source Units* by Mildred L. Biddick (New York, Progressive Education Association, undated, probably 1940). Practically the only extensive discussion of the construction of source units. Contains excellent source unit as illustration.

The various types of subject-matter units and the experience unit are more easily accessible to students, teachers, and curriculum groups.

1. *The local collection.* An extensive, varied, and up-to-date body of material must be built up by local instructors and workshops.
2. *The Card Catalogue in the Library*
 - a. Many individual units and logs are available in book form.
 - b. A few collections of outlined units are available in book form.
 - c. Many sample units appear in texts on teaching and on curriculum construction. (See illustrative list below.)
 - d. Many illustrative units appear in bulletins published by teachers colleges, city and state systems, individuals.

3. *The Education Index*. This is probably the best single source of current units. Use the heading "Units" and sub-heads thereof. Scores of references will be found to original sources, especially magazines, courses of study, bulletins, yearbooks, etc.
4. *Courses of Study* issued by State, County, and City School Systems.
5. *Textbooks* on Teaching or on Curriculum Construction. Various types are available:
 - a. Billett, Morrison These books are excellent sources of sample units and unit titles. Subject-matter type largely
 - b. Draper. A mine of illustrations. Identification and classification uncritical but specific samples excellent.
 - c. Jackson and Ervin. Good preliminary discussion plus many outlined units.
 - d. Waddell, Seeds, and White, Kelty Sample units in social studies field, Both subject-matter and experience.
6. *The Commercial Publishing Houses*. Many companies publish units, materials, outlines, etc. These vary from excellent to completely incorrect.
7. *Yearbooks* of City, State, and National Associations of Teachers, Principals, Supervisors, Curriculum Groups.
8. *Catalogues*
 - a. CAREY, Alice E., HANNA, Paul R., and MERIAM, J. L., *Catalog: Units of Work, Activities, Projects, etc., to 1932* (New York, Teachers College, Bureau of Publications, 1932). Annotations of 7,000 printed accounts of units of work. Recently revised to 1939.
 - b. *Lincoln School Units of Work* (New York, Teachers College, Bureau of Publications, various dates). An excellent series of seven illustrative units, one for each of seven grades in complete book form.)
 - c. McCALL, William A. [Editor], *Teachers Lesson Unit Series* (New York, Teachers College, Bureau of Publications, 1931-1937). Catalogue list supplied on request.

Bases for Class Discussion

1. Bring to class a list of questions on which you wish discussion and explanation. These will be based upon your:
 - a. Examination of a number of source volumes to discover general structure and content
 - b. Examination of a number of modern city and state courses to note the type of sample teaching units and logs presented
2. Describe and comment upon a source volume (bring to class if possible) which you believe to be a good one in aiding students to understand units and their use. (Or select one deemed to be poor.)
3. Describe and compare two source volumes which differ materially in any aspect of form or content. This will enable the class to observe quickly several forms.
4. Make preliminary examination of phases of units and present preliminary questions if these are necessary for understanding of source volumes. Detailed discussion of the phases must wait until completion of the next chapter.

SUGGESTED READINGS

Illustrations of Source Units

BIDDICK, Mildred L. See reference above.

Source units in local collections or in office of local school system.

Definition and Classification of Units

- CASWELL, Hollis L., and CAMPBELL, Doak S., *Curriculum Development* (New York, American Book Company, 1935). Chapter 15 contains one of first efforts to classify units by type.
- HOPKINS, L. Thomas, *Interaction* (Boston, D. C. Heath and Company, 1941). Chapter 7 contains best classification of units. A modernization of Caswell and Campbell.
- LEE, J. MURRAY, and LEE, DORRIS M., *The Child and his Curriculum* (New York, D. Appleton-Century Company, Inc., 1940). Chapter 7 contains quick overall summary of definitions, criteria, outlines.

Illustrations of Teaching Units and Logs of Units

- BILLETT, Roy O., *Fundamentals of Secondary School Teaching* (Boston, Houghton Mifflin Company, 1940). Chapters 7-15 contain excellent general discussion of teaching in the several high-school fields. Units indicated by titles. Chapters 17-18 contain excellent subject-matter units in both academic and non-academic fields.
- DRAPER, Edgar M., *Principles and Techniques of Curriculum Making* (New York, D. Appleton-Century Company, Inc., 1936). Chapters 8-12 contain excellent detailed illustrations of units of many types, together with discussions of principles and practices of planning units.
- JACKSON, Doyle D., and IRVIN, W. B., *The Unit Method of Learning and Teaching* (Distributed by Students Cooperative Store, Texas Technological College, Lubbock, Texas, 1942). Chapters 1-3 good on principles and planning. Chapters 4-8 contain valuable illustrative units grouped on four levels from primary to secondary.
- MACOMBER, F. G., *Guiding Child Development in the Elementary School* (New York, American Book Company, 1941). Chapter 1 contains interesting contrast between traditional and modern school. Chapters 2 and 3 contain excellent detailed account of experience unit on primary level.
- MORRISON, Henry C., *The Practice of Teaching in the Secondary School* (Chicago, University of Chicago Press, 1926, revised, 1931). Many unit titles and brief discussion scattered through the volume Subject-matter units.
- National College of Education, *Curriculum Records of the Children's School* (Evanston, Ill., National College of Education, 1940). Excellent collection of units from kindergarten through sixth grade.

EXHIBIT AND DISCUSSION BY THE INSTRUCTOR

Groups of beginners or traditional teachers without background often profit from analysis of a given source volume, given slowly and informally by the instructor.

10

Planning and Developing Units

The type of unit used by a given teacher will be determined largely by the policy and course of study of the school system in which she works. In the better systems she will have not only large choice but, in some cases, freedom within the local framework. Even in the more formal systems which are beginning to move toward modern methods teachers will be given some freedom of choice, depending upon the vision of superintendents and principals. In wholly formal systems the teacher has little choice as to what or how she shall teach.

Choosing a unit for pre-planning. Several sources are available to aid the teacher in selecting units.

1. *The best source is the on-going activity of the learning group.* Units can be derived from this source only in schools with a very modern policy and by teachers well trained for this type of work. Even in these systems, a general, flexible course of study outline is helpful. Previous chapters have indicated that units based upon pupil purpose are quite possible within a course framework. Teacher judgment is important here, as has been indicated previously, since not all pupil interests or purposes are educationally worth while. The necessity for the eventual rounded development of the learner must always be in the teacher's mind.

2. *An excellent source is the series of source volumes described in the previous chapter.* These are increasingly available throughout the country as the curriculum movement spreads. The teacher is aided in selecting units which will very likely fit the interests, maturity, and purposes of her learning group.

3. *A far less desirable source is the adopted textbook with whatever supplementary material the local systems affords.* This is the only resource available to many teachers. Actually the source of the units here is the teacher's ingenuity. The teacher herself by examining the subject matter imaginatively will see how much of it can be rearranged into units which will be distinctly superior to the original organization. Teachers in traditional schools who have some opportunity and encouragement to improve their methods within the restriction of policy and fixed course of study will have to discover their own units within the subject matter.

4. *Another source is in collections of printed, mimeographed, or typed units and logs of units available commercially or in local collections.* This source may be used in conjunction with each of the three described above. It is particularly helpful to teachers who are not too well trained in unit making and to those who must work within a subject-matter curriculum as in (3) listed above. Teachers who have source volumes available and even those who have some facility in deriving units from pupil activity will benefit from the study of units, particularly while they are developing independent skill. The danger here lies in the tendency to imitate too closely or to carry over bodily. To use units in one situation which were developed in another is to revert to the subject-matter curriculum point of view which we are trying to avoid.

Certain valuable subsidiary sources of guidance. There are still other things teachers may do in securing aid toward selecting units. The following list is adapted from a study of difficulties in initiating activity programs. The items are of value in the order mentioned.¹

- Visit progressive teachers and observe the activities going on
- Visit demonstration rooms
- Read descriptions and records of activities
- Consult teachers experienced in activity work
- Analyze up-to-date courses of study
- Consult the supervisor
- Enroll in methods courses dealing with activities
- Study the interests and needs of children
- Study the facilities of the school and the community
- Analyze one's own experience
- Attend exhibits of pupil work
- Attend lectures on child development
- Read discussions of philosophy and psychology of the new methods

We would not today use the word "activity" as it is in this listing, but the procedures noted are sound and valuable in situations where organized source volumes are not available.

The general elements in planning units. The teacher in a modern school ordinarily will select either a series of subject-matter units for her group, or will think through the teaching-learning situation in which she finds herself and make definite note of the possible opportunities from which typical experience units may arise. Planning for the former type can be reasonably complete; for the latter it must be general, flexible, tentative, and with deliberate provision for many variations. The former calls for planning materials and experiences to use with the materials; the latter, how to carry on cooperative planning. Just what does a teacher do in organizing units? The following pages will summarize the general factors to be cared for.

¹ Adapted from a table on page 30 of Fay Adams, *The Initiation of an Activity Program into a Public School*, Contributions to Education, No. 598 (New York, Teachers College, Bureau of Publications, 1934).

Characteristics of the learning group are studied. The competent teacher starts with a study of the characteristics of the individuals and of the group which she is to teach.² The cumulative records of the school and various other devices will be used to gain information concerning the intellectual abilities, emotional status, social maturity, school achievements, special abilities and disabilities, special intellectual, emotional, and physical needs, the socio-economic status, type of home and neighborhood, and many other useful data. These data are one important base for the unit.

Objectives are set up or derived. The statement of objectives in courses of study, in units, in assignments, in fact in any type of educational material is as a rule very badly done. The lack of organization, the naive confusion between levels, the poor wording in this area constitute serious defects in the materials and a grave criticism of educational workers on all levels from professors of education to beginners writing their first lesson plans. The chief errors are failure to analyze and to discriminate. Selecting and stating objectives are complicated, difficult tasks. Several real difficulties stand in the way. An analysis follows.

Failure to distinguish between remote, general objectives of education, and the achievable objectives of units or assignments. Many teachers and some leaders when stating objectives for teaching situations indicate hopeless confusion between certain *levels* of purpose or objective.

One group lists remote, general, often abstract, long-time objectives of education as the immediate, quickly achievable objectives for limited learning situations covered by a unit or an assignment. In fact, these are often given as objectives for a single lesson. For instance, objectives for these limited units or assignments are often stated as: the appreciation of beauty; the ability to think; good character; co-operation; understanding of democracy; citizenship. The use of this type of objective for single units or assignments is absurd for several reasons.

1. These objectives are achieved only through a continuing program over a period of time. They are properly the remote objectives to be achieved through many series of units in general education, through whole courses or groups of courses in specialized education.

2. These objectives give no help whatever in determining the immediate materials and procedures to be used for teaching processes.

3. These objectives are not dynamic. They do not stir to action.

Teachers and leaders enamored of this type of statement for objectives—who list “beauty,” “culture,” “ability to think,” “democracy” as outcomes for limited learning situations—usually proceed in vague, unorganized, pointless manner. They neither define nor specify Materials and learning experiences are casual and random. Evidences of achieve-

² See Chapter 20.

ment cannot be produced because in fact the statement of the objective does not permit getting evidence. Demands for evidence brings the defense that "analysis kills the spirit." The presence of the "spirit" seems to be accepted without evidence. There is much lovely language about "higher things" but little attention to the workaday details necessary to achieve the valuable higher things which are hidden behind the flowery language. The euphemistic language combined with the lack of forcefulness in the statements actually lulls to inaction.

A natural error regarding methods of teaching and of learning follows. This group tends to sneer at the necessary tasks of preparation, of gathering and organizing materials and experiences, of studying and knowing children, it tends also to sneer at the daily routines, at practice, at the necessity for evaluating and producing evidence of effect.

Another group reverses the error above and states as objectives, not merely for limited lessons but for education in general, a series of narrow, limited, bread-and-butter aims. These are the *ad hoc* aims of the limited utilitarian; the aims of those who interpret literally and narrowly the principle that learning must be based upon the felt needs of the learner. The ability to pass college-entrance board examinations is a prime example of narrow, non-educational objective. This group very often teaches pupils to read, but not how to discriminate trash from literature; to read but not how to discriminate news from propaganda; to read but not to see the relation between a critically literate populace and the stability of the social order.

This group fails to see the fundamental, long-time objectives which as such may properly be stated in general, abstract terms. This group is likely to be mildly contemptuous toward "culture," "beauty," "appreciation of poetry." There is likely to be much hard-boiled language about the "practical," about "facts," with derogatory references to the "theoretical."

The natural error here regarding methods of teaching and learning is that much use is made of daily assignments, recitation of facts, drilling upon isolated skills, daily marking of performance. This group is impatient with the subtle developmental methods designed to develop understandings, to cause appreciations to emerge, to stimulate creative effort.

The exclusive use of this type of objective is detrimental because:

1. These objectives exclusively employed may very well prevent the teacher from seeing the fundamental, long-time objectives and thus prevent pupil progress toward them.
2. These objectives might be achieved without making any contribution toward the achievement by the pupil of desirable generalized controls of conduct and behavior patterns

Failure to distinguish between teacher's objectives and pupil's objectives. The teacher's objectives are the typical things the school and the teachers wish to develop in the learners. In the traditional school, typical

teacher objectives are: memorization of facts by the pupil, achievement of designated skills in reading, arithmetic, language art, manual art, certain vocational skills, and many others. The teacher moving toward modern methods adds to these objectives others in the form of psychological traits, attitudes, and understandings, study habits which she hopes will develop in the learner. The modern teacher usually states her objectives in terms of understandings, attitudes, and appreciations, general abilities, skills, general behavior patterns which she hopes will develop in the learner. She may add fact and other subject-matter learnings if she wishes.³

The pupils' objectives are typical things which pupils wish to do. They may wish to read a story to see what happened next, or for enjoyment of the exciting adventures narrated, or to secure definite information about some item. They may wish to find out what keeps an airplane from falling or how a thermometer works. They may wish to make a model airplane or a thermometer which works. Their immediate objectives are usually apparent in their questions and in their general problems as defined for individual and group work. Pupil objectives of this type together with the sub-questions which emerge become the "leads" around which experience units are developed. The titles of experience units listed in the preceding chapter clearly indicate the pupil objectives in each case. Other questions and problems from which typical pupil objectives can be inferred are:

What keeps airplanes from falling?

What kind of tree shall we plant in the school yard?

How do you make a radio?

How do you make a dress to wear to a school party?

Why do baseball teams generally train in Florida and the South?

What does the Driscoll School have that we haven't which got them in the Sunday paper?

Why is our town named —?

Why is the bay entrance called The Golden Gate?

What are Forty-Niners?

How can we tell a good cold cure from a poor one?

Why did people come here to live in the first place?

Can we write a play and act it out?

The teacher's objectives and the pupil's objectives in any learning situation are not similar in form, but they are intimately related. The teacher's objectives are the desirable educational outcomes in the forms stated above which she hopes the pupil will achieve. The pupil's objectives are the immediate results which he sees and desires and which will result from his activity in solving the question in which he is interested. The teacher hopes so to guide the learning experience that desirable educational results (the teacher's objectives) will be achieved while the

³ This type of objective was illustrated on pages 31-34 in Chapter 2 and elsewhere in the volume and will not be repeated here.

pupil is achieving his objectives. Failure to realize the difference and relation between teacher's and learner's objectives has caused not only much ineffective and useless teaching but has developed detrimental attitudes and practices, and much pupil antagonism toward education. In many schools the pupil does not know or care what the teacher's objectives are. Worse, the teacher too often does not know or care what the pupil's objectives are. Because of this, teachers often cover the ground, go through the motions, and think that they have achieved their objectives when in fact they have achieved no educative results. The pupil has realized neither objectives of his own, nor those of the teacher.

Confusion avoided through clear understanding of levels of objectives. These confusions are easily avoided if it is understood that there are several levels of objectives, each with its place and function. The blunders in stating objectives arise from using statements on one level which are useful only on some other level. This error is found in all types of educational writing, not merely in teachers' plans.⁴

Four levels are distinguishable.⁵

1. *The remote, general, all-inclusive purposes or objectives of society (in so far as society can be thought of as having objectives) and hence the remote, general aims or purposes of education.* The aim of every society is to secure the good life for its members. This aim has been stated variously by different men for different societies and at different times: complete living; satisfaction of wants; morality; character; preservation and transmission of the culture; citizenship; democracy; collectivism. Many printed courses of study have a page or a small chapter giving a statement of remote aims as developed and worded by the local group. These remote, abstract categories are satisfactory for designating the all-inclusive end point and for use among advanced scholars for whom such terms have meaning. As classroom objectives they are absurd.

2. *The general but more definite social purposes or objectives of given social groups.* If we are to come to closer grips with educating members of society we will need to know the general recognizable categories of need or want to be satisfied. Lists have been appearing since early times and with increasing definiteness since about 1860. In 1859 Spencer stated that the chief objectives of education were to prepare individuals for (1) self-preservation, (2) securing the necessities of life, (3) rearing a family, (4) maintaining proper social and political rela-

⁴ *The Purpose of Education in American Democracy* (Washington, D. C., Educational Policies Commission of the National Education Association, 1938). This statement of objectives is largely pompous nonsense because of naive lack of analysis, discrimination, and organization.

⁵ The writer is indebted for this conception of levels of objectives and for the analysis of levels to Dr. Merritt M. Thompson, School of Education, University of Southern California. Unpublished material. A valuable summary of Dr. Thompson's view appears in his article, "The Levels of Objectives in Education," *Harvard Educational Review*, Vol. 13 (May, 1943), pp. 196-211.

tionships, and (5) enjoying leisure time.^a In 1918 the United States Office of Education presented its now famous Seven Cardinal Principles training for (1) health, (2) command of the fundamental processes, (3) worthy home membership, (4) vocational efficiency, (5) citizenship, (6) worthy use of leisure, and (7) satisfaction of religious needs. Various cultural-anthropological lists may be combined into a list of definite social objectives of education about as follows:

1. Physical adequacy—health and vigor
2. Satisfying home and family life
3. Gainful employment—satisfying to the person and adequate for support
4. Participation with others in community activities—social and political
5. Participation with others in religious activities—satisfaction of desire for some relation with the universe at large
6. Participation with others in desirable recreational activities
7. Ability to communicate thought to others and to understand their expression

Recently, lists of general, definite, social objectives with a socio-economic emphasis have been sharing attention with the cultural-anthropological statements. The major functions of social life become the categories. Those used in the Virginia Curriculum and which have been widely used and modified are as follows:

1. Protection and Conservation of Life, Property, and Natural Resources
2. Production of Goods and Services and Distribution of the Returns of Production
3. Consumption of Goods and Services
4. Communication and Transportation of Goods and People
5. Recreation
6. Expression of Aesthetic Impulses
7. Expression of Religious Impulses
8. Education
9. Extension of Freedom
10. Integration of the Individual
11. Exploration

This level of objective is usually summarized in printed courses in the form and wording satisfactory to the local group. Source volumes often contain discussion and diagrams showing the relation of objectives on this level and the materials and experiences for the learners. Objectives stated in the terms given above are out of place and detrimental in a teacher's unit.

3. *The teacher's purposes or objectives.* These are, as stated and illustrated several times in this and in preceding chapters, the typical things the teacher desires for her pupils. Objectives here are stated in the form of definite understandings, attitudes, values, behavior patterns, skills, etc.

^a Herbert Spencer, *Education* (New York, D. Appleton-Century Co., 1874).

U. S. Bureau of Education, *Bulletin* No. 35, 1918. A similar bulletin published in 1929 by the University of the State of New York entitled "Cardinal Principles in Elementary Education" is of interest.

Those which the given unit may develop in the pupil should be stated in the teacher's unit. She may then set about planning materials and experiences to bring about pupil activity toward these goals.

Uncounted thousands of teachers proceed every day without objectives, without anything remotely approximating an objective. The implicit objective is to cover the text, to follow the course of study, to go through certain motions. This is one of the most truly tragic commentaries on teacher training and upon the intelligence of those who proceed thus. This situation undoubtedly contributes to the low esteem in which teachers and teaching are held by certain sections of the public. Teachers without clear objectives cannot be other than incompetent.

4. *The pupils' purposes or objectives.* These are, as has been illustrated, the immediate things the learner wishes to accomplish. In subject-matter units or assignments, which are largely teacher-dominated, the teacher will include a pupil aim which she hopes to be able to arouse through skillful stage setting or conversation. She may plan one which she hopes will be immediately acceptable merely upon statement. In experience units the teacher cannot ever state the pupil's purpose or objective until it emerges in the course of activity. This is not to say that the teacher sits and waits for the pupil to think of something to do. It is foolish not to think through the situation and attempt to foresee what purposes are likely to arise in the given situation. It is also desirable to manipulate the environment to cause pupil purposes to arise. It is therefore sensible and no violation of modern principles to plan for the emergence and development of likely pupil purposes. Coöperative definition of the purpose as it emerges and coöperative planning for its development then follow.

Illustration of the levels. Let us examine specific classroom situations and note how the various levels of objectives enter. The *broad social* objective of a fifth-grade reading lesson is literacy for the nation. Literacy of the population is a measure of a civilization and is necessary to the development of the best life therein. This objective is not an immediate concern of either teacher or pupil. To state it as a lesson objective would be ludicrous. A *definite social objective* of this lesson would be reading skill as a facilitation to the continuous ever present activities of communication. Social processes are immensely improved through easy communication of information. Again this objective is not stated as a lesson aim. The *teacher's objectives* in the fifth-grade lesson might be to increase speed and comprehension, to improve vocabulary, to develop better taste in reading. The *learner's objectives* may be to enjoy a good story, to find out something, or to see what happens next.

A lesson in general science, or one using scientific materials in core units illustrates the levels in a field quite different from reading. The *broad social objective* would be an understanding of the technological civilization in which the learner lives, and certain skills in getting along

in that world. For instance, we educate toward the substitution of scientific fact for lore, superstition, and neighborhood beliefs. We educate for the belief that certain discomforts, shortages, and physical ills are not necessary in modern scientific society. We educate for the use of the scientific method in place of the method of uncontrolled, biased, fragmentary, personal experience. These do not appear as objectives for units or lessons. A *definite social objective* might be certain scientific understandings and abilities in choosing a vocation and succeeding in it; another, scientific interests as recreational pursuits. *Teacher's objectives* here would be some definite scientific understandings, laboratory skills, recreational interests, attitudes toward the world of science, its methods and achievements. Several generalizations of this type were cited in the previous chapter. *Pupil's objectives* might be to find out what makes firecrackers explode, how to remove a stain, how to prepare the soil for growing flowers in the school garden, how to make an electric buzzer.

Caution concerning relation between levels. These levels of purpose and objective are not related to each other in an analytic or in an additive manner. The immediate aims of teacher and pupil are not derived by analysis downward from the remote general aims. Neither are the general objectives fulfilled through addition of learning upon learning from the successful achievement of numerous immediate purposes. The objectives of a teaching-learning situation originate in the situation. They should be based upon and derived from factors present in the given situation. The immediate objectives are less mature forms of the remote goals. The latter are the directional progress goals along which the pupil grows through achieving increasing levels of maturity, insight, skill, understanding, etc. Any teaching situation bears upon the remote aims. The pupils do not know this and to tell them would merely confuse them, and as sometimes happens in the traditional school, antagonize them. The teacher, as the better informed and more mature adult, exercises leadership and guidance so that the less obvious needs of the situation are not neglected. Thus a balance between immediate purpose and remote purpose is achieved functionally.

Modern curriculums usually list broad, flexible social objectives for age groups of children, thus giving teachers valuable assistance in stating more immediate objectives and in planning units or assignments.

The form and wording of objectives are important. Teachers have no trouble stating special abilities and skills as objectives. Straightforward, descriptive wording is simple here. Appreciations likewise are usually stated easily, though there is considerable confusion between appreciations and understandings.

Colloquially, the word *appreciation* is often used when *understanding* should have been used. "I appreciate what you mean" usually signifies "I understand what you mean." Appreciation is an emotional reaction; understanding, an intellectual one; though naturally they are inter-

woven in real situations. Appreciation indicates liking for and tendency to choose, whereas understanding indicates comprehension. "To appreciate what good health depends upon—" should probably be stated as an understanding, "Good health depends upon—." Many units contain such statements as: to appreciate the work of the Weather Bureau (or the Health Department or the Fire Department); to appreciate the community; to appreciate the home; to appreciate the historical background of—; etc. These may contain some elements of appreciation but should more accurately be broken down into several specific understandings.

Stating understandings as objectives presents several difficulties. Students and teachers regularly fall into certain common errors. The chief difficulty lies in securing definite, precise wording. The worst possible method of stating understandings is that which uses the expressions: to understand something of, to understand about, to understand how; for instance, to understand something of our glorious institutions, to understand how industry has affected music, an understanding of the community, an understanding of the homes and industries of the people, etc., etc. Such statements are wholly incompetent. They tell *where* the understandings are but not *what* they are. These statements merely indicate vague and indefinite areas from which definite understandings could be derived and stated if one knew how. Statements of this type indicate that the teacher does not herself see the understandings, that she does not understand adequately the use of language, and, very probably, that she does not think through clearly. In order to avoid confusion later, let it be noted here that in stating appreciations, the form using the word "of" is quite satisfactory.

A somewhat better but still inadequate method of stating understandings is one from which the understanding is easily inferred, but the understanding itself is not stated. This type is often further complicated by being stated in question form: for instance, "What effect has the shift in labor responsibility had on our homes and home life?" This is ridiculous as an objective. A better statement would be: "The understanding that the shift in labor responsibility has had a seriously detrimental effect upon the home, upon the home life, and upon the home training in the industrial centers of the world." The meaningless statement, "What the change in policy of the employer has been regarding the health and safety of the employee," can be translated into a workable statement, namely, "The policy of employers of labor, at first, was to disregard utterly the health and safety of the employee. Agitation brought about legal restraints upon employers. In the more enlightened industries, the employer sees to it, even if only for his own good, that the health and safety of his employees is safeguarded."

The wording of understandings in many courses of study and in many units is so inconsistent and inexact as to be almost semiliterate. Many

of the incorrectly worded statements could be reworded easily and made into reputable understandings. Others need to be translated into understandings rather than to be reworded. Many items listed as understandings refer to items of information and not to understandings at all. Illustrations of incorrect wording:

An understanding of how the people of the Sahara region fit their ways of living to a land of little rainfall, restricted water supply, lack of vegetation, lack of fertile soil, never-ending heat.

The significance of the nearness to the Arctic Circle in determining the length of day and night, temperature, and seasons.

The influence of religion and festivals in the lives of these tribes.

The comparative size of the region.

An understanding of the family.

An understanding of markets.

Understanding of different methods of transportation.

An understanding of some of our problems.

Understanding of how people get along together.

Understanding of how our city protects our safety.

Illustrations of correctly worded understandings, both broad, general ones from courses of study and more definite ones from units, include:

Man is dependent upon the wise use of plants and animals for food, clothing, and shelter. (*General*)

Definite standards are necessary in the selection of actors and in the direction of actors if we are to produce a worth-while, creative interpretation. (*More definite*)

It is possible to seek and find information needed to answer one's ordinary problems.

Much scientific knowledge yet remains to be discovered.

Experimentation and invention are stimulated by competition and in turn modify the growth of industry. (*General*)

Many industrial leaders suppress new inventions which would benefit the public but reduce profit. (*Definite*)

Civilization has not always existed as it is at present but has evolved out of continuous social change. (*General*)

Buildings reveal civilizations and living conditions of the times in which they were built. The pyramids give insight into the absolute tyranny of the Pharaohs, the widespread slave labor, the stratification of society, the religious beliefs and pageantry of the times. The Medieval cathedrals reflected a very deep religious feeling prevalent at the time and also a suicidal disregard for certain economic principles. (*Definite*)

The basis of power in our form of government is popular opinion.

A family must work out a system for the management of its money, and adjustments will need to be made to ensure desirable relationships.

Vague and incompetent statements of objectives may be thrown into sharp contrast with carefully prepared statements. A unit on "The Earth and Its Relations to the Universe" was found to have listed as objectives the following incoherencies:

To understand the heavens as a whole

To know the nature of the stars

- To identify stars and constellations
- To understand the force of gravity
- To know the nature of the solar system
- To know the planets
- To know the nature of comets
- To become familiar with the nature and the effect of the sun
- To know the nature of the moon
- To know how an astrolabe is constructed
- To know about geysers

A competent teacher prepared an organized, detailed list of reputable objectives for the same unit. The following is a brief sample from the list of understandings.

The universe of which this earth is a part consists of millions of bodies with vast distances between them.

The earth is but one of a large number of bodies which affect each other in their physical conditions.

The movements of the various bodies which compose the universe are determined by the action of certain forces and as a result there is order.

The forces which act upon the bodies in the universe are known and as a result their movements can be predicted with great accuracy.

The conditions of life upon this earth are influenced by the relations of the earth to the other heavenly bodies.

The universe, and the earth as a part of it, has developed through a process of gradual change and this process is still going on.

In addition to simple, straightforward wording, the form used should be consistent. It does not matter whether objectives begin with an infinitive, a participle, or any other grammatical form, but the statements should begin uniformly.

Consistent Form

- To give a better understanding...
- To aid in securing...
- To help the child realize...

Inconsistent Form

- An understanding that...
- To aid in securing...
- Helping the child realize...

Criteria for stated objectives of teacher and pupil. The purposes proposed in any unit should be:

1. *Dynamic*, indicative of action and likely to promote it with normal individuals
2. *Socially desirable*, that is, a recognizable directional progress goal leading toward the accepted general aim of education
3. *Achievable*, by the level of maturity of the group, and permitted by the available resources
4. *Developmental*, that is, leading to constantly higher levels of achievement
5. *Varied* enough to care for the varied aspects of the total organism and for individual differences
6. *Limited* enough in number to permit of definite organization without undue diffusion of effort
7. *Susceptible to evaluation*. Evidence of actual progress by the learner may be secured
8. *Cooperatively* set up whenever possible, particularly the pupil's objective
9. *Worded clearly and consistent* in form

Looking ahead to possible methods of evaluation and to evidences of achievement greatly aids statement of objectives. Every legitimate objective, as it begins to be achieved by the learner will affect the behavior of that learner. Proof for some simple fact and skill learnings may be obtained through precise testing; for more complex learnings, evidence will be found through observation, through the collection of incidents, anecdotal records, and the like. Teachers will be aided immeasurably in stating objectives if they will look ahead to try to determine the type of evidence which must be found to prove that learning took place. Many objectives are so vague and indefinite that no methods of evaluation could be devised and no evidence of learning be identified. Objectives so stated are completely worthless. A large number of teachers are in even worse condition in that they have never thought about and do not know the objectives of their own teaching. Teachers should endeavor to state objectives so clearly that evidence of achievement can be derived.

An overview is presented. The nature and scope of the unit is explained in any one of the three forms described in the outline for source units in the preceding chapters. Details omitted, the three forms were: (1) description in running discourse, or (2) a series of "leads" in terms of themes, topics, generalizations (usually for subject-matter units), or (3) a series of "leads" in the form of actual or probable pupil problems, questions, proposals (usually for experience units).

Criteria for evaluating the overview. In examining an overview, the following questions may be asked:

1. Is consideration of each aspect of the problem necessary to the solution or understanding of the problem?
2. Is there developmental relationship between the aspects of the problem as listed?
3. Will each aspect contribute to meeting the needs of the pupils in school and out?
4. Does each aspect offer opportunity to acquire socially desirable outcomes?
5. Is each aspect within the range of understanding of the pupils for whom it is intended?
6. Does each aspect offer specific opportunity for a diversity of pupil activity to meet the various levels likely to be found within the learning group?
7. Does the overview as a whole give the reader a good idea of the unit and its divisions?

An approach or series of approaches is planned. Teachers for generations have planned how to "arouse interest," how to "motivate" pupils to effort. Good traditional teachers have never been satisfied with merely assigning lessons; they have attempted to arouse interest or otherwise prepare the students. Poor traditional teachers are so in part because they ignore, defy, or actively repress pupil interest. This not only handicaps learning but greatly increases the difficulty of the teacher's own work. The Herbartians called the first step of a lesson "preparation." Kilpatrick used the term "purposing" and Burton popularized the term

"setting the stage." Modern terms are: the approach, the initiation, the orientation phase of the unit.

The teacher's unit plan will show how she meets the challenge. She will plan to utilize interests, purposes, or other motives which may be present, or will plan how to manipulate the situation to cause these to arise. The general sources from which approaches may be developed are indicated below.

A. Approaches may be derived from the natural on-going activities of the learners in and out of school; from events in or characteristics of the immediate environment.

1. Seize upon any pupil discussion, argument, comment, or question out of which a unit may be developed readily. These opportunities may appear in and out of class, in formal or informal groups. The range of opportunity here is as wide as the life of the group.
2. Utilize any materials brought from home; curios, souvenirs, utensils, clothes, *objets d'art* from foreign countries or from other regions within our own country; pets; toys; flowers, seeds, fungi, minerals, etc. from the natural environment; apparatus from mechanical areas.

B Approaches may be developed through the manipulation of the environment.

1. Arrange an attractive exhibit or display on the bulletin board, the wall, a table, or exhibit shelf.
 - a. Pictures, posters, picture postcards, of historic or geographic places and events, of costumes, of customs, festivals, of living conditions, of industrial or agricultural processes, etc. These may be ancient or modern or contrasts between them.
 - b. Book covers, extracts from reviews, illustrations
 - c. Books themselves open to interesting pictures or exciting passages
 - d. Apparatus from science, from medicine, from industrial or agricultural processes, household appliances, etc. These, too, may be ancient or modern.
2. Arrange a "beauty spot." This is a form of exhibit or display but is listed separately because it usually has an aesthetic instead of utilitarian emphasis.
 - a. Artistic flower arrangement
 - b. Artistic productions of any type, graphic art, ceramic products, textiles, etc., from foreign countries or other regions of our own country
3. Capitalize upon any important event which occurs. Deliberately ask questions or otherwise initiate a conversation upon:
 - a. Any important current event reported in the papers or occurring locally
 - b. The presence of foreign visitors
 - c. A motion picture showing locally
 - d. A vacation or other trip taken by teacher or pupil
 - e. Any other interesting or remarkable experience undergone by any member of the group
4. Make an excursion or visit to a famous place, or person, to a factory, or a farm, etc.
5. Read an extract from a book, a magazine article, a poem.
6. Show motion pictures, lantern slides, stereoscopes; play records.
7. Refer to experiences in a previous unit.

8. Undertake a local project suggested by school, or by some local organization: beautifying the school grounds, clean-up campaigns, garden contest, etc.

These general sources of approaches differ in effectiveness with the varying levels of maturity, the varying backgrounds of experience, varying socio-economic status of the home, and other factors.

Sources of assistance for the teacher in developing approaches. The initiation of a unit is fundamentally different from giving out assignments. A stimulating, provocative approach is the product of a keen, vivid, creative imagination. Literal-minded persons, slow and stodgy individuals, no matter how earnest and conscientious, no matter how devoted to children, do not ever achieve greatness as teachers. The alert, imaginative teacher sees in many everyday happenings the opportunity to initiate series of learning activities. She is constantly seizing upon openings which many other teachers may not see, or seeing may actively repress. Because approaches are unique and made to fit given situations; because they rest so clearly upon the individual genius of the teacher, it is very difficult to give teachers effective advice about developing them. Such advice would not be desirable even if possible. Adequate detailed guidance would require the listing, discussion, and analysis of hundreds of specific cases, an impossibility in a general volume or even in a limited, specialized one. Teachers must read widely in collections of units, in courses of study, and in specialized bulletins. Some general principles, however, can be listed.

First, adequate knowledge of typical interests likely to be found within given age and group levels is necessary.¹ There is overlap, to be sure, but certain interests are very likely to be present in given situations. The question the teacher asks herself is: what things invite attention, provoke discussion, inevitably stimulate action? What things will persons seize upon and react to, what will they ignore and be indifferent to? The astounding ignorance on this question among parents and untrained teachers results in wasted effort, antagonism, and undesirable outcomes. *Second*, intimate knowledge is necessary of the learner and of his learning processes. The first part of this volume is designed to outline this area. *Third*, the teacher needs an easy grasp of the course of study, and wide general knowledge resulting from a first-class general education. *Fourth*, reading of many units and logs will supply hints and aids. Hundreds of illustrations are available. Materials should not be taken over from units developed under other conditions, but insight is undoubtedly gained through study of the successful work of other teachers. *Fifth*, visiting to observe good teachers at work gives similar assistance.

Pupil participation in initiating learning experiences is important because more pupils will thus be motivated to identify themselves with the undertaking. Traditional teachers often ask what is to be done when

¹ Devices for discovering interests will be summarized in Chapter 20.

an approach does not motivate all pupils in the group. The retort is to ask what they themselves do when their assignments similarly fail to attract all pupils! An assignment by its very nature must always attract and motivate far fewer individuals than will an adequate approach with its varied types of opportunity for different types of pupils. Approaches are very easily adapted to the various elements within a class group just as modern assignments are in some measure. The natural on-going activity of the classroom with the tacit assumption of necessity for doing carries still other pupils along in either assignments or approaches. We may go further than these generalizations, various diagnostic steps may be taken if any considerable number of pupils do not respond. The teacher should

1. Critically scrutinize her approach to see whether
 - a. She has provided a varied range of learning activities in prospect
 - b. She has provided a varied range of materials
 - c. She has not taken freedom and responsibility from the children to such degree that she has reduced their participation to following directions, carrying out assignments, doing as they are told
2. Patiently observe the uninterested individuals and as opportunity arises aid them to find more vivid interests in the on-going process
 - a. Note typical choices of activities, materials, and associates in the school-room and on the playground
 - b. Give many opportunities to try new materials, tools, or processes
 - c. Talk over frankly the reasons for lack of interest in an effort to find one
3. Tactfully and courteously exert pressure to get participation started to see if interest will develop. Drop pressure if not effective in a reasonable time

As a last resort, work may be required just as it is in the traditional school and with the safeguards set up in a previous chapter.

Continued motivation necessary during development of the unit. While the topic of interest is under discussion it may be noted that traditional teachers often ask what is to be done if pupils lose interest in the unit at any time. The retort again is, what was done when pupils lost interest in assignments before completion? Interest fluctuates in all human undertakings. One of the general and constant tasks of all teachers is to maintain interest and attention. The normal range of activities and materials within a unit, the constant coöperative determination of what is to be done, the constant replanning, the constant objective evidences of progress—all contribute to continued interest. When further stimulation is necessary, devices such as those indicated in Chapter 4 may have to be utilized.

Criteria for judging an approach. A list of items could be cited here similar to those already listed for other aspects; but, as stated above, the development and evaluation of an approach must rest in the last analysis upon the genius and judgment of the individual teacher. Hence, listed criteria are of secondary importance only. The teacher will ask anyway

if the approach is based on natural interests, fitted to the level of maturity, diversified, etc. The one important item which takes precedence over all others is: Does the approach interest, invite and initiate action, and continue to motivate the group with which it is developed? Is it natural rather than forced and artificial?

The working period is planned and developed. A functional learning situation utilizes experiences, subject matter, and other materials when and as needed. Various activities within the total situation are inter-related and simultaneous. The major aspects of a unit become separate items only when abstracted from the unified whole for the purpose of description and analysis. The approach and the working period are not separated by a line or at a given moment. Pupils always begin suggesting what to do while the problem is still being identified and defined. Planning what to do and the doing of it go on continuously and simultaneously. Evaluation is also continuous and concomitant with all other aspects. The working period is the most thoroughly integrated part of the good unit. The following discussions of phases must not be interpreted to separate the period into formal steps.

The planning period. A salient characteristic of a good unit is participatory planning and control by the group. The pupils under guidance from the teacher should have large share in planning, deciding, evaluating. Only thus can they learn to plan, to select, to judge, to participate in making group decisions.

Plans are made for the long period of the total unit. In some cases pupils participate in setting up plans for the semester or year. Plans are made also in more definite form for shorter periods within the unit. Constant replanning is a desirable characteristic of unit development. Initial planning with upper-grade pupils may be reasonably detailed and extend over a period of time. Initial planning with little children is briefer and simpler with much detailed planning developing continuously within the working period.

For instance, in the unit on stage design mentioned in the first chapter, the students listed first the items that would need to be cared for during the progress of the whole unit, added others from time to time, and replanned continuously.

What we must know (in order of student suggestion):

- | | |
|-----------------------------|---------------------|
| 1. Nature of all characters | 6. Costume material |
| 2. All the action | a. Period |
| 3. Scenes | b. Making |
| a. Season | 7. Properties |
| b. Day or night | 8. Color |
| c. Material for scenery | 9. Publicity |
| 4. Money to be had | 10. Direction |
| 5. Lights | |

Other items were added as the unit developed. These items were regrouped and organized for attack in further planning. Five areas were

set up. scenery, characters, publicity, costumes, direction. Each of these was in turn broken down, as for instance:

Scenery

1. Layout
2. Color schemes
3. Lights
4. Period or style

This was still further itemized as actual operations, were planned by the students:

<i>Scenery</i>	<i>what</i>	<i>how</i>
1. Paint	powder, liquid, glue	buy it; secure from art department
2. Wood	old scenery flats new materials	buy; find
3. Brushes	large and small; new and old	art department
4. Tools for construction	carpenter tools	bring from home; high-school shop

Costumes

- | | | |
|-------------|-----------------------------------|---|
| 1. Material | amounts and kinds;
accessories | old clothing from home;
buy, rent wigs, etc. |
| 2. Making | sewing;
mixing, using dyes | home-economic dept.
art and shop departments |

Committees were organized and the many varied activities proceeded apace with group conferences for progress reports, the solution of difficulties, and for replanning.

In order to guide long- and short-term planning without dominating, the teacher must know—as has been indicated several times previously—the children, their abilities, interests and backgrounds, the environment, the influences affecting individuals and the group. The teacher must also be on the alert to see that objectives and activities are balanced. No one interest or activity should dominate; none should be neglected.

Planning with and by pupils in a subject-matter unit is limited. These units are typically planned in advance. Pupil participation will usually be confined to dividing the work of finding and analyzing sources, compiling material in answer to questions assigned, arranging for presentation of summaries to the whole group, planning and conducting group discussions. Some teachers give pupils much opportunity to assist in making up quizzes or tests, and in creating better type evaluation instruments.

Cooperative, participatory planning in an experience unit, in contrast, is predominant, including all persons, all aspects of activity and material. This type of planning is treated, unfortunately, in meager, inadequate fashion in general textbooks. Some good discussions are available in special bulletins issued by advanced school systems, and in modern courses

of study. The best assistance is to be found in unit plans and logs which relate in detail how planning actually developed. The following summary is based partly upon such material as is available in print but chiefly upon the experiences of many teachers and of the writer in planning units with all types and levels of pupils.

General initiatory techniques in planning. The general initial technique is usually group discussion. Pupils and teacher talk over, accept, or reject suggestions, finally list the things that must be found out and the things which must be done, and provide for division of labor: what to do and how to do it.

Planning-discussions usually start when pupils wish to know or find out something, or to make something, to try out or experiment with something, or to go to see some famous person or place. A pupil or the group, for instance, may ask a question, or a question may be suggested by some event. Soon a list of questions develops which may be written on the board and later transferred to a chart. The type and scope of these initial questions differ naturally with level of maturity. A third grade, interested when a postman appeared with a registered letter, asked questions until twenty-four had been listed by the teacher. The following samples illustrate third grade interests and insights.

- How long does the postman have to work every day?
- What time does he collect the mail from the box out front?
- How does mail get to the airport?
- What do the men do in the mail car on trains?
- What does the post office look like behind the windows?
- What happens to the letters back there?
- Does our postman have to work too behind the windows?
- Who pays the postman for bringing our letters?

These questions and others like them developed into an excellent unit on the Post Office which was in turn one of a series on The Community and its Organization.

At the other extreme we have the following questions sampled from a list asked by high-school seniors.

- Why is one brother or sister sometimes very unlike the other members of the family?
- What do you think about cousins getting married?
- If a mother listens to beautiful music and studies and plays music before the child is born, can she thus increase the musical ability of her child?
- Is it hazardous to adopt children?
- What are the main factors contributing to broken homes?
- Should not some homes be broken up for the sake of the children?

This list developed not into a unit but into a major course in the senior year. Many important units were organized based on significant areas within the field opened up.

A highly successful course in sex education for young girls organized

in a Corvallis, Oregon school was organized almost entirely around questions asked by the pupils.

Before the class has exhausted its capacity for asking questions, some individuals will have started suggesting sources of information and methods of securing it. This initiates planning some of the typical activities of the traditional school: finding and reading sources in the library or elsewhere; preparing summaries for an oral or written report; making and discussing the reports; summarizing. In a modern school this aspect is likely to involve planning other elements also: dividing the work among individuals or committees; organizing the committees; providing for reports to the total group; planning group discussions which resolve conflicting statements, evaluate, and summarize. In many cases planning will include organizing excursions and visits, interviews, doing experiments, constructing things, gathering exhibits. These latter call for planning how to do these things actually, how and where to secure tools and materials. Constant replanning and evaluation will be necessary. Throughout there will be planning for the giving and taking of responsibility, for exercising initiative and leadership.

This whole series of activities may start, not with a series of questions, but with a proposal to construct or create something. This soon leads to a need for information, for division of labor, for bringing the individual contributions to the group, for getting the benefit of pooled thinking, etc. The same range of activities will be included as in the first illustration above but in different order. Regardless of where and how planning starts, it will usually cover several typical items.

An unusually valuable presentation of the details of coöperative planning is contained in H. H. Giles' *Teacher-Pupil Planning* (Harper & Brothers, 1941). The general theory is presented in simple, explicit language. About twenty illustrative accounts taken from actual class procedures are included, all on the secondary-school level.

Typical items usually appearing during planning. These items do not appear all in one planning sequence. They do not appear in any fixed order. The range and sequence of planning activities depend upon the particular situation being planned.

1. *List questions on which information is wanted, or make plans for the construction of something.* This was illustrated in immediately preceding pages. This may be a major or minor aspect depending upon the given unit. In some cases it will extend to planning bibliographies, planning so-called library research, the making of card indexes, making blue prints, making working models, etc.

2. *Make charts of what to do.* This is self-explanatory. Work is laid out by the group for both the long and the short term. Charts are before the group constantly for guidance in process and for checking as items are completed. Charts may vary from listing of general items and guidance to listing of specific guidance on small items.

3. *Find and list sources of information, tools, or construction materials.* The most common sources of information and of plans for making things are printed materials, texts, supplementary books, periodicals, pamphlets. The modern school increasingly supplements this source with a wealth of others. photographs, motion pictures, real objects, charts, maps, diagrams, experiments, visits to museums, factories, mills, etc.

Another source of information and guidance is the past experience of the pupils. This is tapped through group discussion, through written autobiographies, and reports on special topics. The experience of other persons in the community or further afield may be utilized as sources through letters or interviews. When interviews are used, definite preparation must be made. Conversations do not just develop as the average citizen all too often thinks they do. Many good learning opportunities have broken down through failure to plan the interview. Many business and professional men have refused to cooperate again after an embarrassing and fruitless experience with unprepared, tongue-tied pupils. In contrast, interviews organized around definite topics and questions upon which the interviewee is well informed are valuable and enjoyable. Preparation should not be carried down to minute detail or the procedure becomes stilted and artificial. The children in group discussion decide just what it is they wish to find out, decide upon some broad general topics or questions which will initiate and keep the conversation going. Provision for terminating an interview is as necessary as planning its initiation.⁸

The excursion to museum, mill, factory, farm, store, forest, mine, harbor, lake, or beach is another excellent source of materials. Excursions should be used far more than they now are. They must be definitely planned in advance by the group. An unorganized excursion not only fails to give the pupil the desired materials but has a detrimental effect upon conduct and upon attitudes toward school experiences. Several city systems now issue excellent bulletins summarizing the planning of excursions. The following summary is based upon study of several bulletins and upon wide experience.

Advance Planning by the Teacher

1. The teacher should make the trip herself before she takes the class.
2. The teacher should make arrangements with all the persons whom the children are to meet, to interview, or to hear.
3. The teacher will arrange with the persons met, the routines of the visit, meeting places, exhibits, lectures, pictures, interviews. In case of long excursions the teacher will arrange lunch and rest periods.
4. The teacher will familiarize herself with the transportation facilities and routes (or arrange for parents' cars or school busses).

⁸ An interview blank to be used by teachers in studying pupils is illustrated in Chapter 20. The latter part of this blank will give some guidance in the preparation of general interview procedures.

5. The teacher in some school systems must secure clearance for the trip from the central office; meet certain legal requirements; arrange extra carfare, etc. Some school systems require the carrying of first aid kits on excursions. Others require police cooperation at certain points, crossing guards, etc.

With older groups, particularly in junior and senior high school, there can be much pupil participation in the advance planning.

Direct personal contacts confirmed subsequently by letters setting down the agreements are best. Telephone contacts are not satisfactory at all in arranging a trip for the first time. After a routine has been developed for a given excursion through a number of repetitions, telephone discussions will save much time.

Advance Planning by the Group

1. A list of questions to ask is prepared.
2. Responsibility for asking these questions is delegated. The questions are usually grouped around some topic or problem. Individuals or small groups will volunteer to take these lists in terms of interest. The teacher may distribute those left over.
3. A list of things to look for and examine is prepared.
4. Responsibility is delegated for making notes, making sketches, taking photographs, collecting pamphlets, posters, manufactured products given away, etc.
5. Methods of transportation are discussed so that there is no confusion at the last moment.
6. The conduct of all while on the trip is discussed. Standards of conduct, of courtesy, and of responsibility are set up.
7. Responsibility is distributed for keeping the group together, for leadership of sub-groups, for crossing streets, for avoiding hazards.

Responsibility and detailed planning differ greatly, of course, in terms of the level of maturity involved. The group discussion which follows will include delegating responsibility for summarizing findings, making exhibits if desired, reporting, filing for future use, etc.

Experiments may also be planned as another source of information.

4. *Appoint committees.* A feature of the modern learning period is the diversity of learning activities. This necessitates cooperative distribution of work among individuals and groups. This in turn makes possible class contact with far more material and learning experiences than is ever possible under the assign-study-recite procedure. More important, it provides for individual differences in interest and ability in ways which the traditional school-room procedure cannot duplicate. Summaries and group discussions provide for group contact with all of the diverse materials and activities utilized within the total project. Committees formed may be large or small; they may be organized around any aspect whatsoever of the unit. We may have committees to:

1. Find information
 - a. In the library
 - b. In the community
 - c. In museums

2. Gather materials and exhibits from the community
3. Interview other persons and arrange for their appearance in the classroom
4. Make things: houses, cages, models, murals, relief maps, furniture, costumes
5. Summarize, etc.

The pupil may:

1. Choose his committee
2. Be suggested for membership by other pupils
3. Be selected by the chairman
4. Be assigned by the teacher

The chief factor in pupil choice is interest. Ordinarily, pupils choose:

1. To work on things they can do well, can succeed with; to avoid the new and strange, the "too hard"
2. To work with friends, with those of the same socio-economic status; to avoid pupils held to be inferior in socio-economic status
3. To work with others of similar general ability

These are natural social tendencies. There are definite advantages to both group and individual in the first and third type of grouping. There are also definite limitations. An important objective of education is rounded development for the individual, continued progress in conquering the new and "too hard," respect for different types of personality and leadership. Pupils must acquire facility in several fields, must learn to give and take in heterogeneous groups, must learn to accept responsibility and exercise leadership over varied groups, must learn to accept ability and leadership no matter what its origin. Cliques, especially those based on socio-economic or intellectual snobbishness, should be avoided.

The teacher then has certain responsibilities for adjusting committee memberships. She may assign given pupils to committees or otherwise rearrange memberships for the purpose either of aiding the child to develop some needed interest or ability, or to strengthen a committee. The pupil should always understand, in so far as he can, and agree to the change or assignment.

In the modern school with its diversified activities the pupils themselves soon learn the necessity of having various kinds of ability and personality on one committee. They soon learn to distribute responsibility and work in terms of available personnel. In fact, children often demand changes in committee membership for the same reasons that motivate teachers to make changes.

Pupil recognition of and adjustment to differences was clearly illustrated in the writer's experience with one of his sixth-grade groups. The class was almost entirely made up of "rough-and-ready," somewhat noisy, not too well-behaved extroverts. One boy alone came from a distinctly superior type of home and possessed excellent social training. He manifested an ability to speak to teachers and visitors without embarrassment, to think on his feet, and to carry off difficult situations which usually

reduced the more boisterous children to stammering or silence. This boy was by no means a "sissy." He participated in sports and escapades with the others; but he was rarely, if ever, chosen for positions of leadership on the playground or in other pupil activities. One day, however, the whole group was caught red-handed in a serious misdemeanor which could not possibly be overlooked by the school. Word came that the principal would see a committee to talk things over, make explanations, and decide what should be done. The class with one voice chose the suave young diplomat as a committee of one to meet with the principal! They knew that if any one could save the situation, he could. This recognition by the pupils of types of leadership and ability has definite lessons for teacher guidance. Pupils may be made conscious of the problems involved and stimulated to care for their own rounded development.

Committee chairmen should ordinarily be elected by the pupil groups. Sometimes the teacher may have to appoint chairmen. In any event, children should develop through experience their own standards for choosing a chairman. One primary group decided that a good chairman was one who:

1. Is not too "bossy" but gets things done
2. Does part of the work himself
3. Is kind and friendly
4. Is on time
5. Comes early and gets things ready for work

Upper-grade committees may have a secretary, a property clerk, and any other special officers they need.

Finally, just before committees are released to take up their work, the teacher goes over the plans with them so that each pupil may demonstrate that he knows clearly what his part is in the common undertaking.

5. *Provide for group discussion.* Plans will include provision for integrating group effort through discussion, evaluation, and replanning. Ordinarily, the following items will appear:

1. Reporting progress, checking up, and reexamining plans in the light of progress and difficulties to date
2. Rearranging plans, things to do, questions to answer, assignments
3. Regrouping of personnel
4. Reporting important difficulties from any area which need group analysis and pooling suggestions
5. Evaluating materials, processes, results
6. Summarizing and culminating (this may utilize oral and written reports, pictures, drawings, murals, cartoons, graphs, diagrams); a dramatization (play, pantomime, dance); construction of models, exhibits of innumerable types. Some mature groups take motion pictures of the unit as it develops.
7. Keeping a list of leads to future work

The working period. The working period of a modern unit differs from the traditional recitation period in almost every detail. Three characteristic differences indicate the completeness of the contrast. *First*,

the sepulchral, morgue-like quiet, which parents and traditional teachers mistake for "order" and "discipline," is gone. In its place there is considerable movement and the subdued hum of activities in progress. There develops the discipline of self-control, which is far better than the discipline of imposed authority. *Second*, the limited, formal activities of the recitation have been replaced by a large number of varied activities. There are, of course, various types of socialized and improved recitation periods between these extremes. *Third*, the modern learning experiences are not chopped into short, disjunctive fragments determined by the length of the class period. The elementary school provides continuous periods of activity up to half a day. The core curriculum in the secondary school increasingly utilizes a two-hour working period. Even within the special subjects operating under short periods the learning activities in a modern school are continuous over considerable periods of time.

The learning activities or experiences. A list of approximately eighty learning activities compiled by Mossman was quoted on page 30 of Chapter 2. Understanding of the nature and possible diversity of learning activities will be clarified by examining two other lists arranged on different bases. Diedrich,⁹ presents approximately one-hundred-seventy-seven possible activities organized in eight groups. These groups, with a few samples from each, are as follows:

Visual activities (thirteen in all). Read; look at pictures; observe experiments, demonstrations, exhibits; observe other people at work or play.

Oral activities (forty-three in all). State a fact or principle; relate an event; ask a question; offer a suggestion; express (or relinquish) an opinion; take part in an interview; conduct a recitation or discussion; interrupt.

Listening activities (eleven in all). Listen to formal presentation of material; listen to conversation or group discussion; listen to a play; listen to the radio.

Writing activities (twenty-two in all). Write a story (or essay, poem, play, scenario); write a report; correct a badly written paper; copy material; make an outline (or summary, or list); take a test; fill a questionnaire.

Drawing activities (eight in all). Draw or paint a picture; draw a graph, chart, diagram; draw a map; draw a pattern.

Motor activities (forty-seven in all). Perform an experiment, select materials; hold an exhibit; construct a model (furniture, toys, cages); repair personal or school property; play a game; dance; care for pets, make a garden.

Mental activities (twenty-three in all). Imagine, memorize; detect a problem; analyze factors involved; see relationships; come to a decision.

Emotional activities (twenty in all). Interest; boredom or indifference; delight; snobbishness; courage; judicial calm; mirth.

Diedrich states that the last classification is actually of emotional accompaniments of the other activities. It is also obvious that all types overlap freely. The reading and listening activities are also mental, and so on through the list.

⁹ Paul B. Diedrich, "A Master List of Types of Pupil Activities," *Educational Research Bulletin*, College of Education, Ohio State University, Vol. 15 (September 16, 1936).

Whipple has prepared another list based on a still different scheme of organization.¹⁰

What Pupils Do in an Activity

- I. Work with Visual Materials
 1. Collect pictures and other illustrative materials.
 2. Study pictures, stereographs, slides, and motion pictures for special purposes; listen to explanations, ask questions.
 3. Examine exhibits.
 4. List interesting questions while examining visual materials.
 5. Select visual materials for use when giving an oral report.
 6. Arrange exhibits; write labels and explanations.
 7. Organize and file materials for future use.
- II. Excursions and Trips
 1. Visit museums, aquariums, zoos, etc.
 2. Call on business firms for needed information and materials.
 3. See demonstrations of processes, e.g., soap manufacture, making of paper.
- III. Study of Problems
 1. Search for information in answer to important questions.
 2. Consult encyclopedias and reference books for needed information.
 3. Bring books from home and from the public library to supplement the school collection.
 4. Write to business firms for needed information and materials.
 5. Carry out directions given on guide sheets prepared by the teacher.
 6. Take notes from several books in preparation for discussion or a report.
 7. Interpret maps; find locations.
 8. Perform experiments, such as making soap, preparing dyes for monastic lettering, caring for bulbs.
 9. Evaluate information from different sources; determine the accuracy of conflicting statements.
 10. Organize material read in preparation for discussion or for an oral or written report.
 11. Prepare and give informing and interesting oral reports.
 12. Prepare brief, written reports for definite purposes, e.g., use in a class-book, explanation of an exhibit.
 13. Prepare a bibliography of books used in the study.
 14. Skim material to list interesting subjects for further study (also to locate material of value).
- IV. Appreciation of Literature
 1. Reading interesting stories for pleasure.
 2. Read poems for pleasure.
 3. Listen to reading for pleasure and information.
- V. Illustration and Construction
 1. Prepare charts and diagrams.
 2. Make blue prints.
 3. Draw and construct maps: product maps, relief maps, pictorial maps.
 4. Prepare posters.
 5. Prepare illustrations, maps, and diagrams for a book.
 6. Prepare scenery for a play.

¹⁰ Gertrude M. Whipple, "What Pupils Do in an Activity," *Course of Study Bulletin*, No. 162, Los Angeles City Schools.

7. Prepare a frieze.
 8. Make articles for an exhibit, such as cuneiform tablets, parchment, model of a feudal castle.
(Accurate representation after careful study.)
- VI. Work Involved in Presenting Information
1. Suggest ways in which interesting information can best be presented.
 2. Censor and edit material for books.
 3. Keep an organized bulletin board up-to-date.
 4. Plan and give an assembly program.
 5. Write and give dramatizations.
- VII. Checks and Tests
1. Take informal and standardized tests.
 2. Prepare tests for other pupils.
 3. Keep growth graphs.

Criteria for learning activities and experiences. Each proposed activity should be scrutinized to see if it is:

1. Recognized by children as usable in achieving their purposes
2. Recognized by the teacher as leading to socially desirable ends
3. Appropriate to the maturity of the group; challenging, achievable, leading to new learnings, providing for application of old learnings
4. Varied enough to provide for balanced development of the learner; many types of individual and group activity
5. Possible within the resources of school and community
6. Varied enough to provide for individual differences within the group

Teacher responsibility for best use of learning activities. When varied learning experiences first appeared, many teachers made two serious mistakes. The errors were natural but disastrous. They resulted from poor training, and poor supervision, and the passive attitude carried over from the traditional school. *First*, activities were used indiscriminately and without relation either to the objective or to each other. Varied activity apparently was believed to be educative in itself. Activity for activity's sake is usually miseducative. *Second*, activities were introduced and allowed to proceed without guidance, each like the wind, "bloweth where it listeth." This was a natural carry-over from the traditional school where responsibility was limited to passing out assignments and hearing recitations. The teacher was relieved of responsibility by the fixed text, the fixed framework of the course, and the fixed, formal outcomes.

The modern teacher accepts definite responsibility not only to aid pupils in choosing appropriate activities, but in directing the course of those activities in a sensible manner. This is not too difficult with trained teachers. It would take a small volume to illustrate in detail the educative use of many activities. One illustration of common misuse and of good use for an everyday technique will serve as illustration here. The oral report was one of the earliest departures from fixed recitation procedure. Hence it is commonly and widely used, in fact too commonly and too widely. Many other methods for gathering and reporting should be

used; and, far more important, the oral report when appropriate should be properly used. Too many teachers have pupils report and then drop the matter or ask (without much hope), "Are there any suggestions or criticisms?" One of two things usually results. *First*, there are no comments; the report is an isolated thing apart from any on-going process of interest to all, because no advance preparation for the reception of the report was made. No one really cares, and so no one says anything; a few faithfuls may make some desultory and formal suggestions. *Second*, pupils often develop the habit of analyzing and commenting upon every tiny detail, supplementing with useless detail, indulging in meaningless palaver—quibbling the report to death.

An oral report to be educative must be a natural, necessary part of an on-going sequence; must be in answer to definite questions to which the group actually needs the answers; must supply information which can be put to use. It must be preceded by questions and followed by discussion. To ask, "Are there any suggestions or criticisms?" is formal and focuses attention on static elements of form and content. To ask questions aimed at clarifying understanding, applying to the common problem, using the content directs attention to the dynamic functioning of the material. The pupils themselves will ordinarily have more than sufficient questions to ask after a report which is of use to them. The teacher should have many key questions ready. Reports are to serve purposes and must not be allowed to waste their sweetness on the desert air.

The same general principle holds for the use of each of the many learning activities which may appear in a learning situation.

The maintenance of orderly procedure during the working period. Parents and traditional teachers visiting a modern school for the first time are often disturbed, even aghast. The quiet rows of pupils sitting patiently waiting to be called upon have disappeared. There is a room full of diverse activities going on simultaneously. Some of the children may be at their desks, some at reading tables, some at a modeling table, some at the sink or tool bench. Some are sitting on the floor. Others may be out in the hall painting on a fifteen-foot panel spread on the floor. Individuals and small committees may be talking together. In primary rooms some pupils may be watering flowers, feeding rabbits or chickens, watching bees through a glass window in the hive. Properly understood and properly handled by a competent teacher, this is nothing to be disturbed over. Evidence shows this to be the most efficacious setting both for learning and for democracy.

The most frequent question asked by both beginning and experienced teachers who wish to try modern methods is: How can we have a lot of different things going on at the same time without serious disorder? We cannot be everywhere at once; will not the children get out of hand? How can one teacher guide and direct several different activities at the

same time? *First*, these questions are based on an erroneous conception of learning. They represent ideas naturally held over from the processes of the typical traditional school. *Second*, these questions point to the necessity of highly trained teachers. The questions are real, nevertheless; and everyone will sympathize with the natural fear of embarking upon an unknown and complex process. Unquestionably, many good teachers hesitate to undertake modern methods for fear they cannot manage a number of diverse activities going on at once. The important thing is to venture in and try it! Ability to control an enthusiastic group engaged in various activities will come with experience. The experience must be preceded by and accompanied by education in the necessary principles. Teachers are entitled, however, to more than these generalizations; they deserve definite guidance, sympathetically given. Observation of practice in good schools is a material aid.

First, let it be stated frankly that a modern working period can degenerate into a noisy, meaningless activity in the hands of a teacher who is a poor planner and organizer. This is as true of the traditional recitation as of the modern working period. The bad name which modern methods have had to live down comes from the early days when untrained enthusiasts attempted to use newer methods without first clearly understanding the difficulties. Disorder and near-bedlam resulted. This was all very funny and received much publicity. Publicity was not given to the excellent examples of orderly, enthusiastic groups carrying on diverse activities without confusion. The first requisite, then, is a teacher thoroughly informed and skilled. A teacher with an organized and an organizing mind, with knowledge of the psychology of learning, with knowledge of the principles of leadership, possessed of some executive ability is necessary to the orderly management of the working period.

Second, it must be realized that under the impetus of a purpose real to them, children normally work along without disorder and without supervision. Much of the disorder in the classroom, particularly in the traditional school, results from the fact that the children do not really care about what is going on; it is irrelevant to their lives.

Given the two foregoing basic items, a number of specific suggestions may be listed. The teacher will:

1. Guide the group during the planning period to develop plans which are so definite and so clear that all know what to do and how to do it
2. Check with individuals and committees before they disperse for work to see that the more detailed plans are definite and clear
3. Anticipate difficulties in carrying out plans as made and be ready to call a group conference when the difficulty occurs and before discouragement and work stoppage can result in disorder
4. Guide during the planning period so that sufficient work is outlined to keep all individuals and groups busy over a reasonably long period of time. Repanning will keep the sequence going so that lack of work does not cause disorder.

5. Call for re-planning conferences as work develops unevenly. Workers may be reassigned and activities redistributed.
6. Keep in touch with the varied activities by moving from group to group, by participating, by asking questions, by making suggestions, thus exercising both guidance and control
7. Foresee certain common opportunities for disorder and will forestall them by developing with the pupils regular routines:
 - a. For having all materials, tools, and supplies ready before need for them arises
 - b. For distributing materials, tools, supplies, books, papers, quickly and in an orderly manner
 - c. For using reference materials, particularly when many pupils wish to consult an inadequate number of references
 - d. For holding conferences with individual children who ask for help
 - e. For using as helpers any individuals who may for any reason be unoccupied for a time
 - f. For moving groups, for observing as groups, without crowding or jostling
8. Introduce new activities to small groups directly concerned so that tryout will be without the confusion which might result from misunderstandings within a large group and from too many persons trying a new process without sufficient guidance
9. Give constantly, direct and indirect training in the conventions and routines of group work: taking turns, not interrupting, turning to some other aspect of one's work instead of standing around waiting for tools or materials in use elsewhere, signing in and out for tools and materials, etc.
10. Develop with the pupils flexible plans for their own activities: budgeting time, scheduling group conferences, announcing times for individual conferences, etc.
11. Develop constantly, directly and indirectly, the understanding that freedom carries responsibility, and that self-control and coöperation are advantageous to the pupils themselves and not something required by the school

Finally, let it be noted that in schools where modern methods once get under way and are thoroughly understood by the pupils, the pupils themselves exert vigorous and open pressure upon those who would disturb the orderly procedure. This is true from kindergarten to college.

The subject-matter content. The modern school developing units based on pupil purpose uses far more subject matter than does the traditional school and uses it more effectively. Typical logical arrangement will aid the teacher but not the learners. For little children subject matter must be selected from their own everyday life experience. No other subject matter can have meaning for them. The school then guides the growth of children from this first simple, naïve, and immediately functional organization of subject matter to the more complex, logical, and generalized organization of the special subjects which is proper for higher levels of maturity. The teacher not only has to know more subject matter than before, but she has to see and to be able to develop relationships between subject matters. She must be able to relate it to the

everyday activities of learners on different levels of maturity. Within the special subject areas which exist in their own right on the upper levels, she must be able to organize material functionally.

In addition to being familiar with typical text and supplementary reference materials, the teacher must know where extensive bibliographies are available and be able to use them expeditiously. She must also be easily familiar with the museums, exhibits, and collections available in the school and community; familiar with the resources of the physical and social environment.

The selection and use of subject matter of all kinds, not merely text material, is an important part of any form of unit. The following criteria may be used:

1. Does the material selected indicate that the teacher has adequate mastery of the material available for the topic or problem?
2. Does the material selected indicate that the teacher has seen between materials important relationships which might not be apparent upon superficial examination?
3. Does the organization of the selected materials indicate that the teacher has articulated them both with the course of study governing her situation, and with the life activities and needs of the pupils?
4. Are the materials selected and the sources indicated authentic and reliable?

Other criteria could be stated, but the significant points have already been made over and over again:

Is the subject matter selected and used suited to maturity, interests, and abilities?

Does it lead to higher levels of achievement?

Does it lead to desirable outcomes?

Logical versus psychological organization of subject matter. Unit outlines vary considerably, some calling for logical outlines of subject matter, others for the psychological arrangement through which pupils will meet the material. Doubtless, it is preferable for a teacher to use a logical outline for her own guidance and to indicate the psychological developments which will constitute the actual sequence of events within the unit.

Rousseau pointed out long ago that there are two arrangements of any set of facts or ideas. One chain of thought is developed logically in terms of underlying principles in the material. The other chain of thought is one in which each fact or idea calls up another fact or idea as association, curiosity, and individual interest dictate. The former is the organization of material that has been learned and is already understood by the learner; the latter sequence is the organization of the material as the learner meets it. The former is subject matter organized in terms of itself; the latter, an organization in terms of purposes, desires, likes and dislikes.

As an example, it seems rather logical to teach the geography of any

country in the following order: location as determined by latitude and longitude and in relation to surrounding countries and waters; the climate, involving prevailing winds and topography; the vegetation and products which depend, in part, on the foregoing items; industries; commerce and trade; transportation; cities; people; and government. But the ordinary youngster would probably be attracted to a study of Holland through pictures of windmills and dikes. A study of Brazil might be entered upon through a discussion of the tremendous amount of coffee consumed in the United States. Adams suggests that the study of the feudal system in England and in France would be initiated with the perfectly natural question, "Why are there hedgerows in England and not in France?" To follow rigidly a logical scheme of organization would be to violate not only the laws of the material but the interest and experience of the learner.

History affords a good illustration of the difference between the so-called logical, and the desired psychological organization. History seems to demand, by its very nature, a chronological sequence; but we know that small children have no grasp of long-time intervals, or recognition of the fact that ancient social conditions are out of keeping with present-day conditions. This subject should begin, as it usually does, in a study of the social conditions with which the pupil comes in direct contact. The first step away from home might be, for city children, the study of a farm. This would involve construction on the sand table, stories, pictures, trips if possible, collection of pictures, making booklets, and the like. Tales of Indian life, of the Vikings, of the shepherds and other early people would lead the pupil into history as such. A further study of the local community in some detail would then be in order. This would give the class an insight into chronological sequence through concrete, understandable material. Many modern courses of study provide for intensive investigation of the local community by children of various levels from the third grade up. A number of these studies have been referred to in various places in this volume. Students may read with benefit any units or printed accounts which may be available.

Not long ago the subject matter in reading, drawing, and writing was selected and organized in terms of the units or elements of the processes involved, with little regard for the psychological processes of the learner. Children, and adults as well, grasp things as wholes, and analyze later if necessity demands. For that reason, writing and drawing courses based on a mastery of isolated curves and angles violate the learning processes and are even detrimental at times to quick, orderly learning. Writing and drawing should begin with crude efforts, and improvement sought through comparison with better models. Writing scales have been of great value in this situation.

In reading, it is perhaps best to begin with word or sentence wholes, to pick out simple words or groups of words, and from them to work

out the phonograms that may be necessary. Such phonic work as is necessary should be based upon sight words that were first learned as wholes.

The shift from formal gymnastics to plays and games is in line with organizing subject matter in terms of the learner interests and activities. The muscular development and hygienic benefits supposed to be derived from gymnastics are much more efficiently obtained through whole-hearted, happy play.

In arithmetic, the tables and combinations are still taught practically everywhere in logical sequence, despite the fact that there is considerable experimental evidence to show that some of them are much more difficult than others that are taught later. Many of those now taught among the later ones are in reality easier than those that precede, but few arithmetic primers take these facts into account. The teaching of the fundamental operations must come in for considerable revision in the near future, in terms of experiments on the learning process.

The logical organization of subject matter is that of the adult, the informed person, of the mature mind. It is for the sake of the subject matter itself. Such organization fractionizes the world for the learner. But the child lives in a concrete personal world in which his practical purposes, desires, and emotional reactions are the threads of organization. He is not and should not be concerned with subject matter as such. He uses material from any and all sources as he needs it to carry out a problem or to satisfy some desire. Hence, he attacks and masters subject matter not as it is logically and systematically organized but as it happens to fit his pursuits and purposes. Consequently, the organization of material for teaching should be psychological and not logical. Many of the lesson plan forms used about the country call for outlines of both types. A logical statement of subject-matter material is set forth either in outline form or through references to appropriate textbooks. Then, in that part of the plan which calls for an account of classroom procedure, subject matter appears in psychological sequence. The logical statement of subject matter will, within reasonable limits, stay put; but the psychological arrangement will have to be changed for each group with which it is used. The learners will differ in desires and interests, in background, in various abilities, etc.; all of which will affect the psychological organization. The results of the pre-test aid in determining the psychological organization in any given case.

Evaluation techniques are developed and used. In the modern school, evaluation is continuous and is exercised on all aspects of the unit from preliminary planning to final outcomes. Materials, processes, discussions, suggestions are all evaluated as they appear. Many of the techniques used are developed coöperatively with the pupils since one important outcome of all learning is increased ability to discriminate, to judge, to evaluate. Old-fashioned quizzes and examinations do not disappear but are greatly minimized since they usually test less important outcomes.

Attention has shifted to determining how well the learner has acquired and can use behavior controls in the form of understandings, appreciations, skills, etc. The clue lies in his behavior, hence its observation constantly and in different situations is far more important than formal quizzing. The pupil should learn, not to be tested to see what he retains, but learn in order to be able to use what he has learned in functional situations.¹¹

Resources of the school system and of the community are listed. Each unit will use a multitude of instructional aids and community resources. Listing and analysis of the latter will be found in Chapter 21.

A bibliography is selected and listed. This will usually be in two parts, one giving books for the teacher and the other, books for the pupil.

1. Are the books listed, important and significant for the topic or problem? balanced between older and current publications?
2. Are the bibliographies sub-classified, annotated; library classification numbers given when available?
3. Are authors' and publishers' names, copyright date, and prices included? (This latter is not always necessary but is very valuable in the new units, in sample units, and should be included in source volumes without fail)

Leads to other units may be listed. This is self-explanatory. In experience units the pupils themselves usually suggest more leads for further work than can be followed.

The term "culminating" activity appears in several texts. This stems from Morrison's treatment in which units were definitely terminated with appropriate activities. Culminating activities are naturally summary accounts or exhibits. They commonly take the form of oral reports or "floor talks," written accounts which may sometimes be mimeographed or printed, assembly programs given before parents or other pupils, a play or dramatization, a dance program or exhibit, exhibits of creative products in fine arts, construction of exhibits ranging from the older sand table in the lower grades to more pretentious life-habitat groups in high school, construction of models, demonstration of machine processes, products or skills, demonstration of mental or motor skills. Sometimes a unit may culminate in participation in or control over some community enterprise.

The term is not used in this volume since units are not thought to terminate or culminate but to be continuous. Leads for continuing activity grow out of on-going activity. This does not mean that summary reports and exhibits may not be made at any appropriate time. The important item, however, is to maintain natural continuity of activity.

¹¹ The development of evaluation techniques applicable to given situations and provision for continuous evaluation are difficult enough to warrant separate treatment in Chapter 17.

The use of typical experience processes within subject-matter units and within assignments. Teachers in many places must use of necessity the assignment technique based on subject matter, or use subject-matter units. The processes typical of experience units may be used within the subject-matter organizations. This is most desirable, since not only will teaching be improved but the teacher is led naturally into the development of completely modern methods. This use of experience processes has been illustrated many times in this volume. The chief general principle is that pupil participation, suggestion, judgment be invited at every turn. This principle together with some others may be summarized thus:

1. Discover pupil needs, purposes, and interests through observation of behavior, informal conversations, direct questioning, telling something about the organized materials which the teacher knows she must "cover."
2. Develop cooperatively with pupils:
 - a. The center or centers of interest within the materials thus discovered
 - b. The leads, themes, topics, or problems into which the center of interest can be organized
 - c. The selection of materials and activities
 - d. The delegation of responsibility for various materials, activities, contributions
 - e. The continuous evaluation of materials, learning experiences, suggestions, conclusions, etc
3. Provide as much direct experience as possible; utilize all the resources of school and community in supplementing the necessarily vicarious experience of the subject-matter sequence.
4. Aid different individuals to find opportunities within the general group activities for their unique abilities and ambitions.
5. Aid the learners progressively to see the very nature of the processes by which they learn, thus aiding them toward independence and transfer.
6. Aid and guide the learners constantly toward the acquisition of functional learning outcomes in so far as these are possible from subject-matter organizations.
7. Aid pupils to relate the functional learning outcomes they accept to the formal learnings set out by the course of study; to compare the two; to see the fundamental difference between the two; to note discrepancies between them and to decide whether the discrepancies need to be remedied

Hopkins suggests that the last two points can be achieved better at the end of a year than at the end of individual units.¹² Three reasons are given. pupils will have seen the overlap from unit to unit for given learnings; will have had time to see and learn the processes of planning and evaluating before being bound down by too many prescribed learnings; will be less irritated by meaningless formal requirements once they have had time to develop enthusiasm for and insight into the modern processes and functional results.

Summary on planning. We may now summarize this under three major heads: general preliminary planning, planning a specific unit, planning daily events.

¹² L. Thomas Hopkins, *Interaction* (Boston, D. C. Heath and Co., 1941), p. 270.

General preliminary planning. The activities of the teacher in getting ready for a semester's work are in general as outlined below.

I. *Make a semester preview.*

A. *Make a general plan for semester or other time division.* This will be based upon:

1. A study of the course of study area suggested for the grade or group.
 - a. List main divisions or phases of the total area. (This will appear in modern courses; but if not, the teacher must make her own organization)
 - b. List sub-topics or sub-problems for each main division.
 - c. Keep all this related in an organized outline. This should give a good overview of the area.
2. A study of the maturity, interests, and abilities of the type of children generally found in the group under consideration.
 - a. Translate the logical topics and outline resulting from (a), (b), and (c), listed above into a group of natural, human-interest, out-of-school topics or problems likely to interest the group. If more or less direct translation cannot be made, then
 - b. Construct a list of naturally interesting topics or problems which should arise within the area designated and with the particular group.

On the basis of these studies the teacher will write a general plan for studying the materials, or for developing purposes likely to be found within the group. This will be general, since formality or rigidity at this stage would limit participatory planning and variation of procedure as actual units developed later.

B. *Make a study of class personnel.* This will be based upon:

1. A study of the characteristics, needs, abilities, and interests of the specific group; an estimate of the probable nature and amount of previous experience
2. A study of the characteristics, needs, abilities, and interests of the individuals within the group through analysis of general-ability scores, achievement scores, interest inventories, etc., as shown in cumulative records. (In many instances these data are not kept and must be secured by the teacher herself directly from the pupils.)
3. A study of the general community and of the immediate neighborhood environment from which the group comes.

II. *Make a tentative selection of definite units in sequence.*

This will be based upon and fitted to the information revealed by the two parts of the preview described above.

- A. For subject-matter units or experience units within a course outline: study analytically the source volumes available; become familiar with the range of materials, experiences, approaches, references etc.
- B. For experience units independent of an outline: study analytically the data revealed concerning the personnel and the community; become familiar with the possible sources of units and direct experiences within the physical and social environment; become familiar with extensive bodies of material in libraries, museums, etc.
- C. For either type of unit: consult informally with principal and supervisors for assistance in further fitting groups and units together.
- D. List a proposed series of units.

Planning specific units. The following is but one outline for guiding unit planning. Teachers should not be required to follow it. Others are

available. Each school may set up similar outlines of its own. These outlines are merely guides to keep in mind and emphasize the chief points to be cared for.

A. *Specific Objectives*

1. Teachers' (classified)

- a. Understandings
- b. Appreciations
- c. Special abilities
- d. Skills
- e. Subject-matter outcomes

(Many plans call for this, and it is doubtless a good thing in transitional situations and for satisfying doubts of parents. Many plans omit this.)

2. Pupils' (state probable or hoped-for questions, problems, or topics of interest.)

B. *Overview*

The overview is a brief statement of the nature and scope of the unit. Some writers include also a justification of the unit and an explanation of its place in the total course of study, but the majority of unit makers rely upon the complete titling and the statement of objectives to make these points clear. A few writers omit the overview. One of three forms is used by those who include it.

1. A description of the unit in running discourse
2. An outline of "leads" in the form of topics, themes, or generalizations. This type of lead is found in subject-matter units and constitutes a table of contents
3. An outline of "leads" in the form of actual or probable pupil questions, problems, proposals. This type of lead is found in experience units and is, at first, incomplete. The leads develop as the unit does.

C. *Approach*

A brief account of the most probable introduction or approach. Two or three may be indicated, since various levels of maturity, interest, and ability must be motivated. The account will show either how the teacher plans to utilize pupil activities and purposes likely to be present, or how she will set the stage to motivate the learners. The point is that the teacher will here make clear just how she plans to get the particular teaching-learning situation under way.

D. *Working Period*

The teacher will indicate here how she hopes to develop initial planning out of the approach. She will then indicate in some detail how she plans to keep the situation going once it is under way.

(The planning procedures and the actual development of the working period were developed separately and in detail in the body of the chapter because there was so much to present on these vital aspects. Actually there can be no separation. The approach merges into planning since suggestions begin to arise as the approach begets reaction. Initial planning becomes prominent and moves into the working period without interruption. The working period itself includes continuous replanning.)

This involves planning (in advance or cooperatively) questions, exercises, readings, experiments, excursions, reports, interviews, group discussions, socialized recitations, individual and group reports, development of study habits, setting up committees, exercises for organizing, summarizing, memorizing, practicing, encouraging creative effort.

Individual work, small or large group undertakings will be indicated as the situation demands.

Possible methods of diagnosis of difficulties and of special disabilities, possible remedial measures for items uncovered in the preview or later.

If "probable outcomes" are listed here this should be in such form as to indicate relationship to certain material and certain learning activities.¹³

The form in which this part of the plan is set up varies from system to system. A common form is:

<i>Problems and Questions</i>	<i>Learning Experiences</i>	<i>Materials</i>	<i>Desired Outcomes</i>	<i>Bibliography</i>

E. Evaluation Techniques

The teacher will indicate with illustrations how she proposes to gather evidence showing that the objectives of the unit have developed, and to what degree.

Standard tests and home-made objective tests for fact and skill will be included when and if necessary.

Improved essay questions, problem situation tests, interviews, inventories, and question periods by students will be used.

Behavior records, and anecdotal accounts, and other descriptive methods will be used to gather evidence and to indicate progress with outcomes not susceptible to precise accounting.

There will be, most important of all, clear indication of methods used to develop continuous participatory evaluation, leading to self-evaluation, by all learners.

F. Bibliography

1. Books useful to the teacher in planning the unit
2. Books useful to pupil group. This list should be classified two ways: by parts of the unit; by levels of maturity within the learning group.

G. Instructional Aids and Sources

This will include a listing of all materials, exhibits, tools, realia of any kind which are available in the school or the community, together with location or source, and which are useful in this unit.

Planning daily sequences within a unit. The making of daily lesson plans whether by teachers in training or in service has been associated with the assign-study-recite procedure and will be treated in detail in connection with that procedure. Experienced teachers and supervisors,

¹³ See statement on page 260 in Chapter 9 regarding possible "repetition" in stating probable outcomes.

however, have noted for some time that many of beginning teachers who possess a good general grasp of unit organization are lamentably weak in operating the day-by-day events. Experienced teachers constantly ask the writer for advice about "breaking down the unit" into the things which happen day by day. Textbook discussions of unit teaching are regrettably weak on this particular item. The essence of unit planning is the flexible organization of long-time sequences, the absence of fixed fragments to be completed under deadline. Nevertheless, the development of the unit day by day cannot be neglected. The teacher, as the unit develops, notes what happens, what may need attention in the immediate future, notes uneven development either of the unit itself or of the personal development of the learners, notes excellent or ineffective use of resources and persons, notes many other items. She calls the group together for planning the more minute sequences within the unit, though not necessarily every day. In any event subsidiary planning involves certain points.

1. Estimating group and individual progress, anticipating any possible inequalities in progress, anticipating difficulties and interruptions. Definite notes are made. This leads to the next point.
2. Calling the group together when necessary at the opening of the work period.
 - a. To re-plan any major element in the unit which needs it; to rearrange responsibilities, committee memberships. This may be necessary because of unexpectedly good progress or of the opposite, of unforeseen events.
 - b. To analyze any serious obstacle which developed the day before or over a few days; to evaluate critically suggestions for solution
3. Calling the group together not for major re-planning, but periodically for the sake of coherence and maintenance of common understanding, to discuss:
 - a. What has been done
 - b. What remains to be done
 - c. What comes immediately next
 - d. How all these are things related
 - e. What new general suggestions may be offered
4. Planning and making notes on how to meet difficulties which she can see will arise surely, but which the pupils cannot see until experience leads to insight
5. Foreseeing and making notes on how to meet emergency group discussions in the midst of and interrupting the general activities

The stage reached in the development of the unit must also be considered. The approach and planning period of the general unit plan can be so written as to indicate clearly the sequence of events. The working period is more complicated because a varied series of events is developed simultaneously. The writer believes, however, that the general account of the proposed working period given in the general plan can and should be so written as to indicate clearly a probable sequence of events. This can then be supplemented through attention

to the points summarized above which deal with the day-by-day developments.

The tendency in subject-matter units to outline the working period in terms of the logical series of subject-matter leads in the overview gives little guidance for sequential daily experiences. Outlining the working period of a proposed experience unit in terms of the question-and-problem leads derived from the pupils will give guidance for planning daily sequences.

The subject-matter-unit sequence can be developed better through typical daily lesson plans of the traditional type which are treated in the next section of the volume.

Criteria for evaluating a unit. Literally scores of criteria are available in books, in courses of study, and in the periodical literature. They differ widely in wording and in arrangement but all cover the same essential points. Students and teachers may adopt or construct a list for their own use. Some criteria purport to be for evaluating experience units, others for subject-matter units. The writer believes that understanding is facilitated, not to mention the saving of space effected, by listing criteria which are generally applicable to both types, with supplementary criteria specially applicable to experience units. The writer also believes that criteria calling for "yes-and-no" answers should be avoided since this often encourages students unconsciously to omit careful, critical analysis. It is better to state criteria in a form which demands specific evidence.

Criteria for Evaluating Units

Cite evidence that the unit:

1. Is closely related to the typical interests and needs likely to be found in the on-going life of the learners
2. Will bring learners into contact with aspects of life which are of both immediate and continuing social significance
3. Is appropriate to the maturity levels within the group; is challenging without being too difficult; will be revealing to pupils of their own unique capacities and limitations
4. Is possible within the available resources of the school, the immediate community, and the accessible environment (direct experience)
5. Will provide naturally for use of materials dealing with other places, other peoples, other times (vicarious experience)
6. Will provide naturally for a great variety of individual and coöperative group activities—physical, mental, emotional, and social
7. Will lead (as far as can ever be foretold) to socially desirable learning outcomes; understandings and insights, attitudes, appreciations and values, skills, behavior patterns which will very likely be used by citizens generally
8. Will stimulate (as far as can ever be foretold) critical thinking and evaluation of the learner's own procedure in selecting purposes, in planning means of achieving them, in selecting materials and processes, in accepting outcomes
9. Will lead to other desirable learning experiences
10. Is of such length as to be comprehensible as a unit by the level of

maturity involved; that is, is of such length that the pupil can have insight into it

11. Is related to the general course of study goals and framework

*Supplementary criteria for experience units.*¹⁴ Cite evidence that the unit:

1. Is based upon a purpose which arose out of the on-going life of the learner and real to him; or one which is readily acceptable and real to the learner

2. Is organized as it develops; materials and experiences are selected as needed; ignores subject lines in area of general education

3. Is cooperatively controlled by the group of learners and the teacher with free participation by pupils in all aspects: selecting and initiating, planning, recurrent planning, organization and distribution of activities, determining and evaluating ends, evaluating ongoing activities, choices of materials

4. Is aimed at developmental outcomes

Many teachers and curriculum workers prefer sets of criteria which have more detail, either in the form of illustrative evidences or of questions under each heading. A very useful set of criteria using sub-questions is presented by Caswell and Campbell.¹⁵

1. Do the pupils have a dominating purpose?
 - a. Is the type of behavior required compatible with the aims of education?
 - b. Is the plan of action to realize the purpose based on the past experience of the pupils?
 - c. Do the pupils believe the purpose is worth-while?
 - d. Did the purpose arise from stimuli of a kind the pupils will meet in out-of-school experiences?
 - e. Have the pupils mastery of the abilities needed to carry out the plan successfully or can they master them in reasonable time?
2. Have the pupils engaged in a series of activities planned by them and the teacher to realize their purpose?
 - a. Do the children recognize the part the various activities in which they engage are to play in realization of the purpose?
 - b. Do the various activities contribute to realization of the aims of education?
 - c. Are the activities suited to the mental, physical, and emotional characteristics of the individuals who engage in them?
3. Have the children evaluated their activities in terms of the purpose they set out to achieve?
 - a. Has the plan of action been continuously revised and improved as steps have been taken in its development?
 - b. Have the children recognized the need for more adequate mastery of certain abilities and have steps been taken to achieve such mastery?
 - c. Have the children considered the enterprise as a whole when completed to see what improvements could have been made?

¹⁴ The list of characteristics of a subject-matter unit in Chapter 9 will serve as a set of criteria for subject-matter units.

¹⁵ Hollis L. Caswell, and Doak S. Campbell, *Curriculum Development*. (New York, American Book Co., 1935), pp. 388-389.

- d. Have the children canvassed other related enterprises in which they would like to engage?
- e. Did the enterprise develop conduct of the desired type?

The foregoing criteria are for application to the total overall unit as such. Each phase of the unit has separate criteria as shown earlier in this chapter.

DISCUSSION, EXERCISES, AND REPORTS

This chapter must be supplemented through the reading and detailed analysis of many unit plans and logs of units. The period of study should culminate in the making of a pre-plan for a unit. The exercises listed below have proved effective in several situations.

The writer has also found that one of the most effective devices is to present to the class two or three units in detail and ranging from primary to secondary. A detailed log must be available together with complete illustrations of question lists, charts, exhibits, articles constructed, models, illustrations, pictures, written work, practice material growing out of the unit, etc. The log should be read slowly with the actual exhibits as constructed by teacher and pupils presented at proper points; comments should be interpolated; class questions encouraged. This may go on for two or more days while students are studying the chapter and analyzing units. A skeletonized outline of this type of analysis will be found in Chapter 6 of the volume of Supplementary Material which has been prepared to accompany this text.

Each instructor will need, however, to determine his own sequence of events. The experience and background of his class group, his aim, and the time available will all aid in determining how detailed the study, analysis, and unit construction should be. In any event this major aspect of training cannot be slighted without genuine loss to the student.

The time necessary and the degree of detail in discussion will vary greatly between groups. Inexperienced students preparing for practice teaching will need three or four times as long as experienced teachers who are studying the new methods.

1. Individual students or small committees may examine a unit plan or log available in the local collection or other source. The unit should be briefly described to open class discussion. *Each major phase* should then be analyzed in the light of the criteria in this chapter. (Criteria from other sources may be used whenever preferable. New criteria may be developed by class groups.)

The analysis should not merely list the weaknesses but should include correction in so far as the group is able to suggest improvements.

2. Individual students or small committees may attempt to outline a pre-planned unit. This will require time and recurrent discussion. After a general outline is developed, each phase should be prepared in some detail until a reasonably complete unit pre-plan is produced.

(This cannot be completed under two or three or more weeks. The class proceeds to other problems in the course while carrying this project forward.)

SUGGESTED READINGS

The discussions of unit construction are still in emergent stage, which accounts for the unevenness of the reference materials available.

Course-of-study manuals and local bulletins often contain good materials. The current periodical literature contains unlimited amounts of valuable illustrative discussion.

References to elementary-school practice outnumber those to secondary-school practice very greatly. Secondary teachers, however, may read with great profit the discussions of elementary practice. The majority of references below are to elementary-school situations. A few secondary references will be given in addition at the close of the list.

Titles and publishers will not be repeated after first reference in order to save space and labor.

General Discussions of Selection and Pre-Planning

- BIDDICK, Mildred L., *The Preparation and Use of Source Units* (New York, Progressive Education Association, no date, probably 1940).
- JACKSON, Doyle D., and IRVIN, W. B., *The Unit Method of Learning and Teaching* (Distributed by Students Coöperative Store, Texas Technological College, Lubbock, Texas, 1942), Chap. 3.
- LANE, Robert H., *The Teacher in the Modern Elementary School* (Boston, Houghton Mifflin Company, 1941), pp. 118-132. Chapters 5-10 devoted to various areas of experience contain many excellent suggestions concerning all aspects of the unit. Especially valuable for elementary teachers.
- LEE, J. Murray, and LEE, Dorris M., *The Child and His Curriculum* (New York, D. Appleton-Century Company, Inc., 1940), Chap. 7.
- MACOMBER, F. G., *Guiding Child Development in the Elementary School* (New York, American Book Company, 1941), Chap. 4. Elementary.
- MELVIN, A. Gordon. Four books by this author published by the John Day Company, New York, are replete with excellent concrete illustration and discussion for elementary grades:
The Technique of Progressive Teaching, 1932
The Activity Program, 1936
The Activated Curriculum, 1939
Method for New Schools, 1941
- QUILLEN, I. James, "Using a Resource Unit," *Bulletin* in the Problems in American Life series, published by the National Association of Secondary School Principals and the National Council for the Social Studies, Departments of the National Education Association (1942).
- SCHORLING, Raleigh, *Student Teaching* (New York, McGraw-Hill Book Company, Inc., 1940), pp. 88-99.
- UMSTADT, J. G., *Secondary School Teaching* (Boston, Ginn and Company, 1937), pp. 250-264.
- WYNNE, John P., *The Teacher and the Curriculum* (New York, Prentice-Hall, Inc., 1937). A general, formal discussion of principles in simple language. Valuable for formal teacher wishing to take first steps toward the new.

Stating Objectives

The four levels of objectives outlined in this chapter is the key concept to keep in mind here. The two first levels do not concern us here since they should have been adequately handled in earlier courses. If discussion is necessary here for some groups, many admirable discussions are available in texts on the curriculum, on supervision, on teaching, on principles of elementary and secondary education, and in histories of education.

The immediate problem is the definition and statement of teachers' and pupils' objectives. Discussions are unfortunately meager and inadequate. Many which purport to be analyses of pupils' objectives are actually discussions

of the nature and value of purpose as an educational factor. Valuable as these are, they do not aid in the immediate problem. Much guidance can be obtained through scrutiny of these levels of objectives as stated in courses of study, in unit plans, and in logs.

1. Ignorance of the remote general aims of education is responsible for much error and bad practice in educational policy and in classroom procedure.
 - a. Explain as far as you can at this stage why there is among educational workers somewhat widespread ignorance of the general aims and of the hierarchy of aims.
 - b. Give two or three specific illustrations of error on the part of the classroom teacher because of this.
 - c. Explain in general terms and illustrate the types of error into which educational workers other than teachers will fall because of unfamiliarity with the aims of education.
2. On the average, the derivations and statement of pupils' objectives is done very poorly. Advance several probable reasons for this weakness.
3. The form in which educational objectives on any level are stated varies widely and often contributes to confusion.
 - a. Explain in some detail why these variations occur.
 - b. Indicate in some detail how unnecessary and confusing variations (some variations are natural and legitimate) may be corrected and eliminated.
4. Ask a number of teachers for the objectives of lessons you have just observed. Do not indicate surprise if none can be stated, accept without comment any formal or absurd aims; accept with commendation any competently expressed objectives. Bring the lists and any comments in for class discussion.

BRIGGS, Thomas H., *Improving Instruction* (New York, The Macmillan Company, 1938) Chapter 11 is an excellent discussion of teachers' objectives, the best available. Chapter 12 on pupil purposes actually discusses the nature and value of pupil purpose but not the statement of purposes. Interesting and valuable reading here if not already studied in connection with Chapter 4. Consider the following questions based on Chapter 11 of Briggs:

1. Explain in some detail, if possible with illustrations, the full implications of the last sentence on page 247.
2. What objectives might have been set for the lesson on Browning's poem, pages 249-250? How would they have been selected? How tested or evaluated?
3. Duplicate the story at the bottom of page 250. Why are the objectives at the top of page 251 acceptable?
4. Do you gather from this and other discussions that facts as such are not to be taught?
5. The objectives at the bottom of page 251 are very good. On page 252 the author says that these objectives are to contribute to still larger purposes. What might these be?
6. Answer questions *a b*, and *c*, at the top of page 253.
7. As you observe lessons, be on the lookout for clarity or obscurity of aim: for worth-whileness or uselessness. Attempt to improve on some of the poor ones.

BURTON, William H., *The Nature and Direction of Learning* (New York, D. Appleton-Century Company, Inc., 1929), pp. 565-574. A very old, simple statement containing some now formal items. Disregarding the latter, the statement has considerable value for beginners as an introduction to levels of objectives.

Developing the Overview

Practically every text or bulletin ignores the overview. A few give it a sentence or two. The best guidance will come from examination and class discussion of the overviews contained in available accounts of units and in logs.

1. Examine the overview in a unit plan or log in the local collection, or in any available materials and (a) identify the overview as to type (one of the three listed or a variation thereof, or a new one); (b) evaluate the overview carefully and in detail in terms of the seven criteria given on page 276.

(This exercise should be repeated for several units. Individual students may present brief ones for analysis, small committees may analyze more extensive overviews.)

2. Present for class analysis the overview you have written for the unit you are constructing.

(Experienced teachers may submit any they have used previously.)

3. The instructor may present two or three different overviews for the same unit and allow class to evaluate each.

Preparing Approaches

HOCKETT, John A., and JACOBSEN, E. W., *Modern Practices in the Elementary Schools* (Boston, Ginn and Company, 1938), pp. 69-75.

LANE. Excellent illustrations scattered throughout volume.

LEE and LEE, brief note pages 201-202.

MACOMBER. Excellent illustrations scattered throughout volume.

WYNNE, pages 210-218.

These discussions present, in the main, stage-setting to cause pupil questions to arise. Very few discussions are available showing how to seize purposes from the on-going activities of the pupils. This cannot be discussed easily in any event because it is so much a matter of individual genius on the part of the teacher plus facile knowledge of general principles of human behavior and motivation.

Developing the Working Period

CASWELL, Hollis L., and CAMPBELL, Doak S., *Curriculum Development* (New York, American Book Company, 1935), Chap. 9 and pp. 358-360.

CASSIDY, Rosalind, and BAXTER, Bernice, *Group Experience, The Democratic Way* (New York, Harper & Brothers, 1943).

GILFS, H. H., *Teacher-Pupil Planning* (New York, Harper & Brothers, 1941).

HOCKETT and JACOBSEN, Chaps. 2 and 3, pp. 75-91, and Chap. 5.

LANE, pp. 104-118.

LEE and LEE, pages 202-205, 216-219 and scattered through Chapters 9-14.

MACOMBER, Chapter 5 and possibly reexamine Chapters 2 and 3.

National College of Education, *Curriculum Records of the Children's School*, pp. 7-23.

TIPPETT, James S., and others, *Schools for a Growing Democracy* (Boston, Ginn and Company, 1936), Chap. 7.

UMSTADT, pp. 202-212.

WYNNE, pp. 220-233.

1. Report in class any other good accounts of the development of the learning experiences found in texts or periodical literature.

2. Report in class any accounts found (usually in periodical literature) of the development of specific items such as pupil interviews with interested adults,

school excursions, planning organizations, construction, the handling of group discussion.

3. Report analytically on any teaching observed with particular reference to the development of learning experiences.

The Organization of Subject Matter

BILLETT, Roy O., *Fundamentals of Secondary School Teaching* (Boston, Houghton Mifflin Company, 1940), Chaps. 7 and 8-15.

CASWELL and CAMPBELL, Chap. 10.

MORRISON, Henry C., *The Practice of Teaching in the Secondary School* (Chicago, University of Chicago Press, revised 1931), *passim*.

The Daily Developments

Many discussions are available concerning the daily time table and typical traditional program, but few of the daily adjustments necessary as units develop. HOCKETT and JACOBSEN, chap. 4.

National College of Education, pp. 307-351.

Evaluation

Treated separately and in detail in Chapter 17.

Secondary School References

As indicated earlier, references on this level are fewer than on the elementary. Some of the above-listed volumes contain references to both levels.

BILLETT and MORRISON are the two chief volumes devoted to secondary-school practice at the moment and are especially valuable for those interested in subject-matter units and in moving toward modern practice.

Two other volumes, although they do not discuss the details of teaching practice, will be found of very great value to secondary teachers. The modern point of view is explicit and well stated throughout. Each is written in an easy, informal style. The one by Spears is illustrated with clever and enlightening cartoons.

PIERCE, Paul R., *Developing a High School Curriculum* (New York, American Book Company, 1942). An interesting, informal account of the birth and development of a new high school in a difficult Chicago district. Excellent general reading. Chapters 4-10 especially applicable here.

SPEARS, Harold, *The Emerging High School Curriculum* (New York, American Book Company, 1940). Chapters 4-16 contain brief descriptions with fragmentary illustrations of practice in a score or more experimental high-school programs, many of them in ordinary city high schools.

Part III

THE ORGANIZATION OF ASSIGN-STUDY-RECITE PROCEDURES

This contains the heart of the assign-study-recite-test procedure. The testing or evaluating phase is omitted here and is included in Part IV because techniques fitted to both major teaching procedures are summarized in one chapter.

Many instructors may find it desirable to study the chapter on evaluation immediately following the study of Chapter 10 on unit-planning, and then to reexamine selected sections of it quickly after studying the chapters on assignments, study habits, and the recitation.

Chapters on questioning and on daily lesson-planning of the traditional type are included here because these two items are closely associated with the older methods. The planning of daily sequences within units was analyzed in the preceding part devoted to unit organization.

The Improvement of Assignments

The modern method of initiating units will not be universal in schools for years to come. Many teachers will be using the assign-study-recite-test formula. The assignment is the key to this teaching procedure since it largely determines what pupils do and how they do it, and hence determines the results achieved. Formal assignments to books for the purpose of remembering facts is definitely on the wane, but there is much legitimate learning to be acquired from books. This will be facilitated by competently made assignments. Furthermore the meaning of assignment has been expanded to cover far more than reference to books. The improvement of the traditional assignment is, therefore, important and necessary.

Objective studies of assignment practices. A large number of investigations cover all aspects of the assignment: number, placement, time used, effectiveness, types, etc. Fortunately these have been compiled in two monographs which are mines of statistical evidence and of illustrative materials.¹ No important investigations have appeared since these were published. There is an extensive current literature, but it is chiefly descriptive of practice. Class reports may be based upon current periodical materials.

Evidence exists showing the relationship between good assigning and teaching success. Studies of pupil failure also show the importance of the assignment since vague, indefinite, unmotivated assignments are common causes of failure to learn. Teachers often cite as a cause of pupil failure, lack of study habits. Lack of training in study is in truth a cause of failure, but long years of working on assignments which gave no help with study are equally to blame. Worst of all, the investigations show that even now the meager, vague, wholly inadequate type of assignment predominates in the secondary schools. Pupil participation in developing assignments is negligible. There are definite signs, however, that assignments are breaking away from pages or chapters, from demanding memorization of subject matter, toward interpretation and

¹ William Carr, and John Waage, *The Lesson Assignment* (Stanford University, Cal., Stanford University Press, 1931).

Gerald A. Yoakam, *The Improvement of the Assignment* (New York, The Macmillan Co., 1932).

many other types of activity. The immediately following paragraphs summarize in outline the historical sequence of the chief improvements which have appeared.

The arbitrary assignment of pages, exercises, topics, or chapters. Practically every one, except children fortunate enough to have come through modern schools, is familiar with the type of assignment made hurriedly as the bell rings, "Take the next six pages," "Take the next chapter," "Work the next ten problems on page 92." This is an assignment in no known sense. This tells the class where the assignment *may* be, though no real assignment may be there at all. It does not tell what the assignment is nor what to do with it. No learning objective is indicated, no study questions or aids provided, no standard for evaluating results is indicated. No known purpose of teaching or of learning is served. The teacher's only objective must be to "cover the text," regardless of whether or not the text material is usable! The pupil has either no objective or a viciously false one. Teachers *habitually* using such assignments must be completely ignorant of the nature of teaching and learning, very lazy, slightly stupid, or all three. As indicated in an earlier chapter such assignments are *occasionally* justifiable within an on-going sequence and with mature students. Studies summarized in the two monographs referred to above show that this type of assignment predominates.

Brief intellectual preparation for assignments. One of the first improvements grew out of the Herbartian methodology introduced into this country just before the turn of the century. The teacher asked a few questions, referred to some current event, engaged the class in conversation, or mentioned directly some knowledge already known to be in possession of the pupils. The questions, conversations, or references were designed to recall and place in the forefront of consciousness some background related to the assignment to come, and to which the assignment would seem to be attached naturally. Assignments were then made to texts, other materials, or other activities. This was a trivial and superficial technique but when adequately done was an improvement. The pupil had some basis for understanding the assignment no matter how thin and intellectualistic. As will be shown later in this chapter one of the more pretentious improvements is the pre-test procedure which gives data on which assignments may be based. The pre-test was developed by later neo-Herbertians who elaborated on the idea of background for the assignment.

Differentiated assignments: minimum essentials for all plus enrichment for average and bright pupils. Modern psychological research began to supply many facts concerning individual differences in ability, interest, rate of learning. These facts naturally affected assignment practices.

Materials deemed necessary for understanding the topic were assigned

as minimum essentials to be mastered (memorized) by all. The bad repute which the term "minimum essentials" now enjoys in educational discussions dates back to this association with factual and textual materials. Extended reading in other books or related sources was given the brighter pupils. Sometimes the supplementary work was more of the kind covered in the minimum essentials assignment; sometimes it included reading of contradictory accounts which required organization of reports and comparison of arguments. More difficult reports were given the brighter, and easier ones to the slow or dull. This often avoided open division in the group since slower pupils rarely recognize that their assignments are less difficult if they are similar in form to those of other class members. In addition the slow pupil thus gains on his level experience in gathering data, evaluating various accounts, formulating reports, participating in class discussion. There are other benefits in time saved, self-confidence, and interest generated through participation.

The organization of supplementary assignments in modern times has gone far beyond the early forms which were confined to text materials largely. Now many different activities can be suggested: interviewing persons, performing experiments, observing places or processes, serving on committees, securing materials, constructing exhibits, preparing pictures, collecting magazine references, making charts or diagrams, preparing script for a dramatization, etc. All of these are to be distributed among the various levels of ability so that each gets maximum benefit.

The organization of supplementary assignments of worth presents great opportunity for ingenuity and originality in the teacher. The objection is often raised, however, that no teacher has time to organize any efficient system of supplementary assignments under practical working conditions. This is true in part. It is not expected that every teacher will organize all her courses this way immediately. Her system of assignments will be built up over a period of time. Since such assignments are based on subject matter and not on pupil needs they can be used again with minor adjustments. Within a department the staff working together can distribute the work of developing assignments. In addition there is good material to be found in the periodical literature. The preparation of good supplementary assignments is a distinct step in advance and can be done by competent teachers without undue imposition on time and energy.

The further extension of modern assignments to include study guides and many diverse activities. The differentiated assignments often included study questions and guides as incidental to the chief question and text material. Ordinarily, these questions were directed at extracting the important facts for memorization. Some of the more difficult assignments began to use questions calling for comparison and evaluation and for summary judgment. Some involved more or less preten-

tious projects which included both mental and motor activities. This was another stride forward. Though still dominated by text covering, by fact memorizing, by teacher imposition, this step did begin to carry the student toward the exercise of powers of analysis, selection, judgment, and original organization. Even those who think of learning as largely the mastery of text material have recognized that the way in which that material is attacked is strongly influenced by the nature of the assignment. The mental processes required may be simple and few, or analytic and numerous, straightforward or genuinely muddled; the outcomes may be superficial or basic depending upon the assignment.

Teachers are increasingly taking time to develop explicitly the objectives of the assignment and the methods by which these may be achieved. Free discussion to ensure preliminary understanding is provided. Assignments increasingly prepare for difficulties which the pupils may meet during their independent study period. Hard words, idiomatic phrases, and other linguistic difficulties are explained. Lists of study questions are often mimeographed as material aids to the pupil in finding, evaluating, and organizing material for presentation in class. Each assignment cannot stop to clear up all difficulties; it cannot even indicate all possible sources of information nor all learning activities. But properly made assignments will progressively bring the pupil to mastery of the use of dictionaries, encyclopedias, supplementary books, tables of contents, indexes, marginal headings, graphs, charts, pictures, etc. Intelligent use of such details facilitates learning. The pupil guided by proper assignments will also learn to outline properly, to take notes, and to discriminate materials for outlining. He will learn under guidance of assignments when to read rapidly skipping detail, when to read slowly and carefully. He will learn to find other sources and to make intelligent choices and comparisons. These items are all elements in the study process and will be discussed in the following chapter, but it is to be emphasized here that proper assignments must take them all into account.

The use of questions, problems, and projects, and pupil participation. Many teachers have shown real ingenuity in setting up provocative questions and problems designed to cause the learner to react to text materials instead of merely to accept them. A fairly certain index of teaching skill is the ability to make inviting connections between the fixed, required subject matter and the interests and purposes of the pupils. The teacher may develop a fairly extensive conversation concerning a current event, a new book, or important moving picture, a local occurrence, or any item proving useful. The discussion is bound to provoke argument, difference of opinion, or group efforts to derive understanding or to make applications. The skilful teacher derives from the class discussion a question or series of questions which may

be answered wholly or in part through assignment to typical text materials. Recall the connection made by the teacher between the text material on the Reconstruction Period and natural everyday interests and purposes of high-school students.

After the principal problem has been stated, discussion might ensue regarding the data to be gathered and the sources thereof. A half dozen minor assignments, to an individual or to a small group, might be made. Here we have valuable pupil participation in finding worthwhile questions and in suggesting ways and means of studying.

The procedure indicated above represents a move away from teacher imposed questions or assignments to teacher arousal of questions from the pupils. The pupil is participating. This is still teacher dominated and aimed at covering fixed text material but is a huge step forward.

Incidentally, let it be noted that when we take the next step and move over to pupil-initiated questions and pupil planning of assignments we have passed from traditional to modern type teaching. If improvement of the assignment is carried to its logical conclusions by competent, alert teachers, these teachers will be led naturally by their own practices to see the superiority of the modern technique which minimizes and practically abandons the typical assignment.

The pre-test and the assignment. A recent development popularized by Morrison is the pre-test.² As the term indicates, the status of the class prior to the initiation of a course or unit is investigated. The purposes are two: to give the teacher insight into the needs, abilities, interests and individual differences within the class group; to give the pupils some connection between their present situation and what they are about to learn. Ideally, no assignments should ever be made without pre-testing but this is probably too much to ask under present working conditions. Many alert teachers, however, make astonishingly extensive use of the technique. The average teacher, owing to faulty training and uncritical experience is far too prone to organize courses and assignments in terms of the materials and with little or no reference to the needs, abilities, or even information of the pupils.

The form of the pre-test may be a class discussion, an oral or written test of traditional type, a standard achievement or diagnostic test, an inventory of information, interests, needs, attitudes, a check list of behavior traits, problem-situation tests, or by any instrument or technique which will supply pertinent data to the teacher.

This type of testing has nothing to do with evaluation of the pupils' achievement. Pupils must know that it has nothing to do with marking, despite the familiar word "test."

Many lesson-plan or unit-organization forms in use by teacher-

² Henry C. Morrison, *The Practice of Teaching in the Secondary School* (Chicago, University of Chicago Press, revised 1931), p. 82 and elsewhere in volume. See also discussion of pre-test in other recent books.

training institutions and many plan books used by teachers in service provide a place for summarizing data about the class group and individuals therein. Compiling these data from pre-tests and other sources, particularly for several classes will take some time and energy just previous to the close of any semester. The benefits are well worth the work. Large numbers of teachers find that they are able to do this under practical conditions. Astonishingly good use is made of such data in many schools.^a

The sequence of assignments. Since the typical assignment procedure is based upon a textbook, or group of books, or printed course of study, the sequence is determined for the teacher. Her skill will be utilized in attempting to relate this pre-determined sequence to the normal interests and needs of her pupils. In some instances, she can within her own courses vary the fixed sequence to make it more teachable.

Wherever a liberal school gives good teachers opportunity to develop their courses more independently, whether within a loose framework or freely, better sequences of assignments, i.e., better materials and experiences with them are likely to result. In any event, teachers should not quietly accept nor themselves construct pointless, unorganized, unco-ordinated series of assignments. Responsibility for defensible sequence should be accepted.

The foregoing paragraphs briefly sketched some of the historical steps in improving the assignment and also introduced the student to some of the problems. Let us turn to a summary of the problems and difficulties, the principles, and the characteristics of desirable assignment technique.

The purposes to be served by good assignments. The broad general purposes are three and are easily stated. Details and actual techniques must be worked out in actual situations based on principles and other guidance given.

Desirable assignments will give the pupil a clear understanding of:

1. What is to be done
2. How it is to be done
3. Why it is to be done

Objectives will be clearer when stated and described in simple language, when pupils ask questions, when pupils are asked how they think the assignment may be attacked, asked what they propose to do first, where to find materials, etc. As stated earlier there is ample evidence that the majority of assignments now used in schools do not give pupils clear objectives. Vague, indefinite, inexact, poorly worded statements predominate.

^a Good illustrations should be available in assignments and unit plans collected by the instructor. Some printed units contain such data. An illustration of partial summary of such data will be found on page 510 of Roy O. Billett's *Fundamentals of Secondary School Teaching* (Boston, Houghton Mifflin Co., 1946). Note the materials Billett says are omitted in this summary since they are very important

How the assignment is to be done indicates the development of a working plan and subsidiary study aids. These have been briefly indicated in preceding pages, will be illustrated during the working of exercises at the end of this chapter, and will be elaborated somewhat in the following chapter. The plan and aids will vary with the nature of the lesson, level of maturity of the pupil, time available, and the philosophy of the school. Learning takes place best, perhaps only, when the pupil sees a reason for participating in learning activity. Best general methods are to connect the assignment with life needs and purposes, or, failing that, with interests, some of which may be extrinsic. Studies show that unfortunately there is no observable motivation for the majority of assignments. The motivations used are nearly all inimical to learning and to the social purpose of the school, for instance, promise of privileges, promise of prizes or honors, threat of punishment, competitive marks, mention of marks and threats connected therewith. It is far better to give the pupil an opportunity to achieve success in some undertaking or line of development which he can see is useful and worth while to him. There is probably no other single motive as strong as this.

Some writers include as one purpose of the assignment the determination of pupil needs. The present writer believes this is preliminary to the assignment. This was discussed earlier in connection with the unit. In any event assignments and initiated units should serve pupil needs and social purposes.

Difficulties and problems confronting the teacher making assignments.

Several studies have been made but the summaries are poorly stated and very badly organized. The following paragraphs are based on an analysis of various summaries.

Two serious obstacles to good assignment technique seem to reside within the teacher and can be cured only by the teacher. These are unwillingness to take the necessary time, and unwillingness to exert the very real effort demanded. The assignment, too often slighted, is an important member of the teaching procedure. It requires time for pondering, for critical study, for written organization, for tryout, for discussion with others. It requires systematic and continuous effort. Good assignments simply cannot be "dashed off."

The other difficulties are inherent in the construction of assignments but can be overcome by competent teachers willing to spend time and effort. These are:

- Finding provocative and convincing connections between subject and life needs or interests
- Producing clear and definite statements of objectives
- Providing appropriate and challenging study guides and aids
- Making sure all pupils understand objectives and methods of procedure (know what to do)

- Providing adequate variations in requirements to fit range of differences in the group
- Gaging difficulty of requirements and time necessary for accomplishment by different levels of ability
- Avoiding extremes of too much or too little
- Providing continuity
- Ensuring correlation with other subjects and other activities
- Providing means of evaluating pupil progress and achievement

The principles underlying the characteristics of good assignments. Even in traditional schools the aims of mental discipline through memorization of subject matter, of knowledge for its own sake are giving way to the aim of furthering the growth in the pupil of desirable understandings, attitudes and appreciations, and abilities useful in organized society. The assignment is aimed not so much at mastery of subject matter as at the use of subject matter in experiences which further growth. This is true even when the center of gravity is in the subject matter, and when subject matter is determined in advance. The alert teacher asks, how will this assignment bring to the pupils materials and experiences which aid in developing several useful personal qualities?

The following list may be regarded either as a set of principles or a set of characteristics.⁴ It is based upon several lists in scattered sources.

1. The objective, the thing to be done, should be stated in clear, simple language. The ability to do this is not immediate and automatic. Study and practice are necessary.
2. A provocative and convincing connection should be made between the subject matter of the assignment and the typical activities, interests, and needs of the pupils' current lives.
3. Assignments, while connected with and motivated by pupil need and interest must also serve desirable social purposes of education, that is, lead to the development of outcomes useful in the organized society of democratic life.
4. Study guides, questions, and other aids should be included.
5. Assignments must provide for different levels of achievement, for greatly varied study or learning activities, in accord with the range of differences in ability, interest, and needs within the group.
6. Assignments should be based in so far as possible on pre-test data, or other information about the class which may be secured by the teacher from the cumulative records or other sources.
7. Assignments should initiate and motivate substantial units of work. Day-by-day fragmentary assignments should be avoided rigorously. Periodic summaries of progress with attendant reorganization of assignments is desirable.

⁴William Carr and John Waage, *op. cit.* Pages 43-77 contain a most helpful discussion of principles and characteristics.

Gerald A. Yoakam, *op. cit.* Discussion of principles and characteristics is involved, repetitious, and unorganized, but the collection of actual illustrations of good and bad assignments taken from actual situations is the best available in print. Scattered through the whole volume. Excellent detailed check list for assignments, pp. 375-384. The list of standards from this check list is reproduced in Nelson Bossing, *Teaching in Secondary Schools* (Boston, Houghton Mifflin Co., 1935), pp. 248-252.

Several studies show that good teachers make far fewer assignments than poor teachers but devote much more time to assigning. The small number of assignments using greater time indicate the use of large units. The belief that the teacher must break learning up into thirty- or fifty-minute chunks, one to be assigned each day, is humorously referred to by Frederick, Ragsdale, and Salisbury as the "ridiculous imperative"! ⁶

8. Assignments should use all the time necessary for explanations, for answering pupil questions, for developing an adequate plan of action, for arranging subsidiary individual and committee assignments, making sure that all know what is to be done. The time necessary may vary from a few minutes to two hours or more.

9. Assignments may be made at any stage of the lesson in such way as to take advantage of need or interest and at the same time preserve continuity.

10. Assignments should be such that evidence of progress and achievement can be derived with reasonable ease. Many careless assignments are of such nature that neither teacher nor pupil can demonstrate that the assignment is being accomplished. The learning indicated by the assignment must be either measurable or observable in some objective manifestation.

11. Pupil participation in selecting and developing assignments and methods of procedure is definitely desirable.

12. The teacher must regard the development of good assignments as a series of difficult tasks demanding the expenditure of time and energy, requiring systematic study and considerable ingenuity.

Types of assignment and illustrations. *Types.* The total number of types of assignment listed by various authors actually runs into the scores! Distinctions without differences abound. All kinds of trivial and non-fundamental characteristics are used as bases of classification. It is futile to reproduce the lists. Probably the most sensible listing is Yoakam's, divided into two categories. "old-type" and "new-type" assignments.

His old-type list includes: page, paragraph, topical, chapter, question, exercise, experiment, and theme assignments. The new-type list is: problem, project, unit, contract, job-sheet, term syllabus, guide sheet, the indeterminate, the goal book.

The present writer is less interested in classifying assignments and more interested in securing assignments with certain characteristics. The desirable characteristics of good assignments should be largely the same. These have been set forth, it is hoped, in the foregoing list of principles and characteristics.

Illustrations. It is impossible to include here adequate illustrative material; a whole volume would be necessary. The writer, with a collection of several hundred assignments before him, attempted to select a series for inclusion here which would illustrate the salient features. Since many modern assignments cover several pages the amount of space necessary for a good series of illustrations is not available in the

⁶ Robert W. Frederick, Clarence E. Ragsdale, and Rachel Salisbury, *Directing Learning* (New York, D. Appleton-Century Co., 1938), p. 219.

present type of book. Other volumes⁶ of this type include one or two brief assignments or fragments thereof. These should be read quickly. This is helpful but is not even the proverbial drop in the bucket. Particular emphasis must be placed upon the necessity of having available an adequate collection of assignments good, bad, and indifferent, from all school levels and in all subjects, from units and projects. This collection can be built up by instructors over a period of time. Meanwhile collections in print must be utilized. It is quite impossible to give students guidance in developing an assignment technique without opportunity to analyze good and bad assignments.

The most adequate collection in print is in the volume by Yoakam already referred to in this chapter. Chapters 2, 3, and 4 contain a truly astonishing array of assignments illustrating practically every characteristic of all types. Lacking collections of their own, instructors are urged to provide definite systematic study of Yoakam's materials. Exercises are provided at the end of this chapter, and instructors will devise many others to suit the needs of their own class groups.

DISCUSSION QUESTIONS

1. A teacher tried the following experiment. She assigned a lesson and said that instead of waiting until they went home the students could take the next fifteen minutes of the period for study. A few pupils were utterly unable to begin; others took the whole fifteen minutes to get started; some looked around helplessly and imitated others; some went to work immediately. But all these pupils had been coming to class each day with their home work completed with reasonable correctness.

What legitimate inferences may be drawn regarding the nature of the pupils' home study?

What kinds of training were probably taking place, so far as we can tell; what kinds not being accomplished? What faults may have appeared in the assignments?

If given faults are present, what advice might be given?

What difficulties might appear which were not the fault of the teacher?

2. Can lessons ever be assigned legitimately by pages, chapters, lists of problems?

3. Is it safe to say, "no lesson should be assigned unless the students feel a need for it"?

⁶ Roy O. Billett, *op cit* Chapters 17 and 18 contain unusually fine illustrations of unit assignments for units as defined by Billett. Though limited to one type, this collection is the next best to Yoakam's. Detailed study well worth while. Disregard the definition of unit used.

William G. Brink, *Directing Study Activities in Secondary Schools* (New York, Odyssey Press, 1937). Good illustrations on pages 140-144

William H. Burton, *The Nature and Direction of Learning* (New York, D. Appleton-Century Co., 1929). Brief, simple illustrations, pages 448-453, 456-458 Good reading for initiating discussion of assignments.

Frank A. Butler, *The Improvement of Teaching in Secondary Schools* (Chicago, University of Chicago Press, 1939), pp. 170-172, 174-175, 176-178, 181-185, 212-214.

Robert W. Frederick, Clarence E. Ragsdale, and Rachel Salisbury, *Directing Learning* (New York, D. Appleton-Century Co., 1938), pp. 235-236.

4. In many schools assignments are written on the board and copied by the students. Critically evaluate this procedure.
5. When a pupil says, "I did not know where the lesson was," there may be several explanations. Suggest them.
6. Should a teacher ever permit digressions from the assignment during the recitation or discussion period? ever permit abandonment of the assigned materials and activities?
7. Under what circumstances can a teacher properly assign without a pre-test?
8. What would be your attitude and what would you do if your classes presented an organized protest asserting that your assignments were too long?
9. State one or two useful generalizations derived from or clarified by Wynne's chapter on the assignment.
10. Briefly what seems to be Wynne's conception of the relation of the assignment to the unit? What do you think is the relation of modern assignment technique to pupil-initiated learning activities?
11. Report for class discussion any good descriptions of assignments found in the current literature.

EXERCISES AND REPORTS

1. Recall in some detail a particularly good assignment that you had in high school or college. Analyze it as well as you can recall it, in the light of the twelve principles in this chapter. Do likewise for an especially poor assignment.
2. Observe an assignment in the course of your class visitation, making notes afterwards, analyze in terms of principles. Do not mention names or places.

Reports Nos. 3-8 are extensive and difficult. Students and small committees may select those on which they wish to work. The total group will profit through the reports even though all students do not prepare all reports.

3. Chapter 2 in Yoakam, "The Need for Improvement of the Assignment," contains much data and fifteen excellent illustrations. The text states the general type of weakness in each but does not have space for detailed criticism; that is, Yoakam tells us that a given assignment lacks purpose, or lacks motive, or is not individualized, or is not well organized, or fails to give the pupil any help, etc.

- a. Make a list of specific weaknesses, compiled through analysis of any half-dozen assignments in the chapter. (Individual students or a small committee.) The emphasis is to be on "specificity." Pooling of student reports on this and the following exercises will produce a list of definite, recognizable errors in assigning.

4. Chapter 3 in Yoakam, "Types of Assignments and Assignment Materials," contains an unusually good collection of assignments illustrating the types which Yoakam distinguishes.

Class members or small committees may select one or two to be analyzed in the light of the twelve principles in this volume. Show for each principle that the assignment does or does not exemplify it. Do not hesitate to disagree with or extend the analysis in Yoakam.

5. Chapter 4 in Yoakam, "The Characteristics of a Good Assignment," includes another good collection based on the characteristics of desirable assignments. Proceed as in Exercise 4.

6. Examine the excellent modern-unit assignments in Billett, Chapters 17 and 18. Analyze any one assignment in the light of the twelve principles.

7. Work out a different approach or introduction for any one of these assignments.

8. Billett gives on pages 540-544 and 576 four units without accompanying assignments. (One each on Growth of Language, Reading and Understanding of Graphs, Understanding and Prediction of Weather, Corrective Work in Physical Posture.)

Work out a detailed assignment to accompany the unit as there given.

Note. The assignments in Billett cannot be attempted by students not amply well prepared in the subject matter of the individual units. For prepared students these exercises will be most important.

9. *Final and most important. To be done by all students.* Prepare a detailed modern type assignment. An actual class will have to be in mind or a theoretical set of data set up as a basis for the assignment. This may be for actual use if you are a teacher in service; for practice teaching if you are in training; or for class analysis if you are neither in service or training. Take any aspect of your major subject or school level and prepare a workable assignment.

READINGS

- BILLETT, Roy O., *Fundamentals of Secondary-School Teaching* (Boston, Houghton Mifflin Company, 1940), Chaps. 17 and 18 Good illustrations.
- BRINK, William G., *Directing Study Activities in Secondary Schools* (New York, The Odyssey Press, 1937). Chapter 4 is probably the best of the modern discussions. Well written, concise, and well organized.
- BURTON, William H., *The Nature and Direction of Learning* (New York, D Appleton-Century Company, Inc., 1929). This volume is superseded by the present one. The old edition, however, contains some simple illustrations which are good for beginners and inexperienced teachers. Pages 448-452, 456-458.
- BUTLER, Frank A., *The Improvement of Teaching in Secondary Schools* (Chicago, The University of Chicago Press, 1939). Good simple discussion with brief illustrations. Chapter 9 and pages 212-214.
- BOSSING, Nelson, *Teaching in Secondary Schools* (Boston, Houghton Mifflin Company, 1935), Chap. 8. Repetitious and badly organized but in simple language. Many helpful suggestions. Very good check list and set of standards.
- CARR, William, and WAAGE, John, *The Lesson Assignment* (Stanford University, Stanford University Press, 1931). A mine of statistical information. Chiefly useful for settling arguments through use of facts. Valuable to the experienced but uninformed teacher. No illustrations.
- FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (New York, D. Appleton-Century Company, Inc., 1938), Chap. 11. An excellent modern treatment. Explicit and well organized. Few illustrations.
- WAPLES, Douglas, *Procedures in High School Teaching* (New York, The Macmillan Company, 1925), Chap. 10. A very old but lively and interesting presentation. Original and ingenious.
- WYNNE, John P., *The Teacher and the Curriculum* (New York, Prentice-Hall, Inc., 1937), Chap. 16.
- YOAKAM, Gerald A., *The Improvement of the Assignment* (New York, The Macmillan Company, 1932). The discussion in this volume is repetitious, involved, and in some places extremely naïve and uncritical; however, it is full of useful material. The collection of assignments is the best in print.

Exercises listed above provide for intensive study of three chapters. Other chapters may be used to accompany this discussion.

The periodical literature. The extensive current discussions cannot even be sampled here. The bulk of them describe practice rather uncritically. Scores of specific suggestions can be found, however. A student may be asked to report on a selection of current articles.

The Development of Independence in Study

The questions given below introduce the student to some of the general problems of the chapter. Many other problems will appear. The questions may be discussed in class; but, if not, a thoughtful reading will serve the purpose. Incidentally, these questions are illustrative, though in very simple ways, of the study questions or guides referred to in the previous chapter.

1. Analyze your own study processes and be ready to report:
 - a. How your procedure differs from subject to subject
 - b. How your procedure differs from instructor to instructor
 - c. How the instructor's assignment and method of teaching influence your studying
 - d. How any other outside factors influence your studying
2. If you have noticed the influence of your own attitude and understanding on study, report:
 - a. How your like or dislike for a subject affects your actual studying
 - b. How your like or dislike for the instructor influences your studying
 - c. How your understanding of the value of the subject influences you
 - d. How knowing what to do and how to do it aids you. How failure to understand what to do handicaps you. Illustrate concretely.
3. What are some obvious evidences that many students (perhaps including yourself) do not know how to study?
4. Consider your own study activity and report on the:
 - a. Influence of amount of time and time of day
 - b. Influence of immediate physical surroundings
 - c. Influence of your present mental state, including the influence of immediately preceding mental activity
 - d. Influence of your present physical well-being or lack of it
 - e. Influence of yesterday's activities or of tomorrow's anticipated activities
5. Do you study your hardest or your easiest subjects first?

When assignments consist of "take the next ten pages" and no further explanations are given, when recitations consist of oral quizzes to see how much of the "ten pages" has been remembered, then "study" can be only memorization and nothing else. This primitive conception still influences the practice of thousands of teachers.

The emergence of several psychological and sociological factors has long since demonstrated the absurdity of the above-described formula and has initiated important improvements. Much of this has already

been adequately covered in earlier chapters. A brief summary gives emphasis to the special problem of this chapter.

First, it will be recalled that the learning process was discovered to be far more complex than had been thought. *Second*, it was increasingly realized that study, properly interpreted, is learning, and utilizes the numerous, various techniques of learning. *Third*, studies of pupil failure revealed that thousands of pupils had no conception whatever of study habits. Many did not even know how to read well enough to do the traditional type of study. Worse, thousands of teachers knew no more about learning and studying than did the pupils, hence could not help them. The studies of failure also revealed the connection of many factors far outside the school-room which affected study. *Fourth*, increasing knowledge of individual differences focused attention on the differences in rate and type of study. *Finally*, it has been increasingly realized that the direction of study is a function of the regular total teaching process and not a special set of devices or technique. The work period of the modern unit makes learning and studying synonymous. Supervised study gave way to "directed study," and that to "directed learning," and finally to "guidance in learning." This is not a mere change in terminology but reflects steadily increasing insight into the problem.¹ This is, however, a little ahead of the story. A brief historical summary will illuminate present problems.

Supervised study appears. The reaction to all this, particularly to pupil failure through ignorance of study procedures, was a direct attempt to improve pupil study habits. Increasing understanding of the nature of study gained through analysis of the process aided the effort. Supervised study programs sprang up everywhere. It was sincerely believed at the time that an important step forward was in the making. There were high hopes and glowing claims, but experience and research deflated the claims and dimmed the hopes. Here we have one more illustration of what happens when willing and enthusiastic persons undertake something for which they are not trained. Elaborate administrative plans were made, daily schedules rearranged, physical facilities and materials provided, much money spent. Teachers and administrators started supervising study with energy and eagerness. The fact that practically no one knew what to do in actually supervising study did not disturb any one—until later. The careful, systematic training of teachers should have come first. There were other causes of failure, as will be shown.

¹ It is significant that the two best books on study have the word "directing" in their titles: *Directing Study in the Secondary School*, by William G. Brink (New York, Odyssey Press, 1937) and *Directing Learning*, by Robert W. Frederick, Clarence E. Raggsdale, and Rachel Salisbury (D. Appleton-Century Co., 1938). The word "guiding" is appearing increasingly in the titles of books on teaching, learning; and study. References to "supervised study" have practically disappeared.

William A. Brownell, "What Has Happened to Supervised Study," *Educational Method*, Vol. 17 (May, 1938), pp. 373-377.

The first reference to "supervised" study appears in the *Readers' Guide* during the period 1915-1917. The peak of popularity and practice was from 1917-1925. By 1935 the topic had practically disappeared from the literature. The emphasis had shifted to identifying study with learning and to developing study habits as natural outcomes of regular teaching-learning situations.

The older forms will persist, however, in many schools for years. Many teachers will have to operate within these schemes; hence, a brief analysis of typical supervised study procedures will be given.

The forms of supervised study to appear. *Study rules.* The first effort to improve study could hardly be called supervised study. Sets of study rules and suggestions were presented to pupils in the pious hope that application would be automatic and fruitful.

The rules referred to physical conditions, time and place habits, and to a few of the more obvious general rules for reading, understanding, memorizing, outlining, etc. Suggestions were heavily weighted toward the more formal types of assign-study-recite procedure. Such rules are sound and useful with mature students. The elementary and secondary pupils, receiving no explanations or assistance, merely pasted the rules in textbooks or desk covers and forgot them.

It should be noted that even in the very earliest and most formal period prophetic voices were raised pointing to the identification of study with total learning. McMurry's volume on *How to Study and Teaching How to Study* was published in 1909 and clearly identified study with learning as it was then understood, identified teaching how to study with the general teaching process. The child-study movement starting even earlier when G. Stanley Hall and his students focused attention on the importance of the pupils' learning processes and attitudes toward study.

Administrative schemes. Reeder states that the movement presaged by McMurry, Hall, and the child-study group was stunted and perverted by the American predilection for administrative machinery.² In the enthusiastic construction of administrative devices, schedules, and physical facilities for supervised study one important aspect was seriously neglected—the actual technique of supervising and helping pupils at study! The essential aspect of the movement was lost in its own furniture and machinery.

Reeder goes on to say that part of the difficulty was the error, natural enough under traditional conditions, to regard study as the individual, silent study procedure of individual pupils, and to regard it further as a separate, discrete aspect of the total learning process. His diagnosis is undoubtedly correct.

The chief administrative provisions developed are listed, since many

² Edwin H. Reeder, "Directing Children's Study of Geography," *Educational Method*, Vol. 17 (May, 1938), p. 387.

teachers may have to work within one of them. Each of them is discussed at considerable length in texts on study, and in the periodical literature. In areas where such plans are in operation and will be met in practice by students and teachers, detailed class reports may be made for further understanding.

1. Double periods, part discussion, part study
2. Single periods divided between discussion and study
3. Homogeneous ability grouping
4. Special remedial classes in reading
5. Special remedial classes in high-school subjects
6. Individualized instruction
7. Case study of serious difficulties
8. Study coach or study supervisor
9. Library study plan
10. Study-hall plan
11. Home-room supervision of study
12. Daily extra period for supervised study
13. Course in how to study.

Technique of supervision neglected. The chief defect in all the schemes and the weakness of printed discussions was the absence of any systematic discussion of specific details of the actual procedure to be utilized by the teacher. Specific practices cannot be prescribed for so intricate and individual a matter as developing study habits but certain general directions for teacher guidance can be offered. These will be indicated in later paragraphs.

Experimental data on the value of supervised study. A very large number of controlled investigations, usually of the parallel group type, were made. The advantage was on the side of supervised study but was too slight to be significant. The truth of the matter was that the experiments really compared various administrative schemes for facilitating supervised study and did not compare supervised study techniques at all. In fact supervised study itself had not yet been defined sufficiently to permit valid experimental research. No real process had as yet been developed. A good effect of this inconclusive experimentation, however, was to reemphasize the growing attention to the actual process itself.

Supervised study gives way to guided development of study habits. The general aim of modern guidance of study is identical with the general aim of teaching, namely, the development of independence in the use of certain understandings, attitudes, habits, skills, and general abilities. The general process is that of providing opportunities for the exercise of these items in learning experiences which are meaningful to the pupil.

What then are the desirable study habits and skills?

Study habits in better traditional schools. Nearly fifty books have been published dealing with study processes. Several score more general books

devote a chapter to the subject. Forty or more study manuals have been prepared for use by elementary and secondary-school students.

The best known of the books on study are those by Bifd, Brink, Brotemarkle, Crawford, Frederick-Ragsdale-Salisbury, Kitson, Parr, Pitkin, Salisbury, Sandwick, and Whipple.³ This list includes new and old publications. All are valuable, the two best being those by Brink, and by Frederick, Ragsdale, and Salisbury.

All of these volumes are based on traditional methods of teaching. The suggestions are based on the assign-study-recite-test process. The writers have made material contributions to the improvement of that process. They do not discuss study in terms of guiding learning activity as it is coming to be discussed by the moderns. The two volumes singled out above, however, lean strongly that way.

Brink⁴ made a valuable analysis of sixteen of these general books to determine the study habits and aids most frequently mentioned. He classified the items under four major heads with eighteen subdivisions. The wealth of detail can only be indicated here; for instance, there are 180 different suggestions on how to read more effectively. How to take examinations received the next highest number, indicating the far too great emphasis on examinations in teaching practice. Sixty different suggestions were made concerning outlining, memorizing, problem solving, and making written reports. His general summary was:

- I. Physical Conditions for Study
 - A. *Environmental.* (Have a definite time and place for study; secure proper light, heat, ventilation, and furniture, seek a quiet place and freedom from distraction; have suitable materials available.)
 - B. *Physiological.* (Be obedient to the laws of hygiene; seek bodily change and relaxation during long periods of study; stop short of physical fatigue.)
- II. Psychological Prerequisites for Study
 - A. *Attention.* (Form the habit of forced attention; concentrate on task to be performed, have confidence in yourself; avoid impossible tasks.)
 - B. *Motivation.* (Have favorable attitudes, interests, and incentives; find definite aims; have definite goals in view; relate tasks to larger goals, avoid monotony in study activities.)
 - C. *Development of habits.* (Practice accurate repetition; make positive attack; practice reactions which will be useful later.)
 - D. *Planning.* (Distribute periods for study; analyze tasks; keep record of how you spend time.)
 - E. *Self-evaluation.* (Test yourself for personal characteristics; note your methods and standards of work.)
- III. Study Habits Relating to Preparation of Assignments
 - A. *Reading.* (Have purpose; improve speed; improve accuracy; enlarge vocabulary; make mental summaries; formulate questions on reading; underline important points; adapt type of reading—e.g., rapid and intensive—to purpose; read assignments first as a whole and then reread more carefully; give attention to paragraph headings.)

³ For titles, publishers, and dates, see bibliography at end of chapter.

⁴ William G. Brink, *op. cit.*, pp. 41-48. Used by permission of the publisher.

- B. *Outlining and note-taking.* (Organize materials read or heard; make brief outlines; make detailed outlines, evaluate important points; take concise notes; use abbreviations; take notes on lectures and from books.)
 - C. *Memorizing.* (Have purpose; comprehend material to be memorized; distribute practice periods in rote memory; be accurate in first reading; concentrate during repetitions; use mnemonic devices; adapt method—i.e., whole or part—to type of material; practice frequent recall; keep record of progress.)
 - D. *Problem-solving.* (Get problem clearly in mind; collect all pertinent data; test hypotheses; evaluate conclusions.)
 - E. *Reviewing.* (Space reviews properly; use notes; make brief outlines; ask questions.)
 - F. *References.* (Use library and such reference aids as dictionary, bibliographies, footnotes, periodicals, record references efficiently; make careful bibliographies.)
 - G. *Making written reports.* (Choose subject carefully; limit problem, select details; organize materials; make tentative outline; use varied vocabulary; use literary devices; write first draft rapidly; allow time to elapse before revision.)
- IV. Study Habits Relating to Classroom Activities
- A. *Recitation.* (Be a good listener; ask pointed questions; join in class discussions; take notes; plan oral reports; practice making the report aloud.)
 - B. *Lecture.* (Listen for points of view, the plan, and the important points; take notes; evaluate; relate to your experience.)
 - C. *Examinations.* (Use summaries and notes; go over main points; make brief outlines; answer questions in text; concentrate on difficult parts; distribute study)
 - D. *Laboratory.* (Observe and analyze carefully; represent ideas graphically; take notes; write up reports clearly.)

Another valuable analysis was made of thirty-eight how-to-study manuals designed for use in the secondary schools.⁶ A total of 3,743 specific references to 517 different study habits or skills was found. Many of them had important subdivisions. The 517 items, of which 313 were mentioned more than four times, were grouped under 24 main divisions or types of study activity. The list covers five-and-one-half pages of solid type. As with Brink's analysis the largest number of references was to habits and skills in reading; with preparing for and taking examinations, second. Then followed general learning habits, outlining and note-taking, classroom activities, memorizing, using the library; the physical and psychological conditions of studying came next.

The thirty-five specific habits or skills mentioned twenty or more times were:

- Seek and acquire a motive (34)
- Plan a reasonable time budget for day and week (20)
- Use ways of developing concentration (27)
- Take positive attitudes toward task (26)

⁶ Samuel R. Laycock, and David H. Russell, "An Analysis of Thirty-Eight How-to-Study Manuals," *School Review*, Vol. 49 (May, 1941), pp. 370-379.

- Realize necessity of attitudes of alertness, confidence, attention in reading (26)
- Exercise physical care during study (25)
- Improve vocabulary (25)
- Have proper place to work (24)
- Avoid distractions from within (24)
- Read critically (24)
- Organize material read under headings and topics (24)
- Apply knowledge learned (23)
- Avoid immature habits of reading (23)
- Use differential rates of reading for different types of material (23)
- Make use of tables of contents (23)
- Organize the preliminary notes; use outline (23)
- Select main points of lecture and take adequate but not too copious notes (23)
- Use internal motives (22)
- Use objective study scales, questionnaires on study habits, spelling graphs (22)
- Use various types of speed exercises, drills, tests in reading (22)
- Read for different purposes (22)
- Mark books intelligently (22)
- Know necessary preliminary activities with a new book (22)
- Collect ideas and facts for written reports (22)
- Form habit of not giving up—repeated effort (21)
- Make brief outlines (21)
- Do not hesitate to memorize definitions, formulas, dates, provided you first understand them (21)
- Prepare materials and place for work (20)
- Use habits of positive attack (20)
- Use dictionary often (20)
- Know parts of a book (20)
- Make use of aids to the thinking process as a whole (scientific attitude, etc.) (20)
- Use all the varied library resources (20)
- Do preliminary bibliographical work for written reports (20)

The two lists supply a reliable summary of the chief study habits and skills to be developed. Students should read over several of the total listings. The list based on the analysis of study manuals is an impressive exhibit of the number and range of study skills.

The foregoing lists are of *general* study skills usable in nearly all types of work. In addition to these there are a number of *specialized* study skills peculiar to studying various special subjects. For instance, study in mathematics requires skills in reading formulas, making and reading graphs, using mathematical equipment such as slide rules, protractors, squared paper, etc. Both mathematics and science require skill in associating verbal statements with drawings, diagrams, and other schematic representations. Science requires skill in setting up apparatus, sometimes in making or repairing it, gathering of specimens, interpreting technical vocabularies. Brink has attempted the most complete listing of the special skills but his lists are heavily loaded with general skills.⁶ He includes one chapter on study in the modern integrated program and

⁶ William G. Brink, *op. cit.*, Chaps. 5, 6, and 8-14 inclusive.

while it is largely a description of integrated programs it is the best of the efforts to identify study with learning. Skills pertinent to various special subjects may be summarized in class reports by students who are interested.

Study habits in the modern school. As stated earlier the foregoing lists are based upon the traditional assign-study-recite-test procedure. They are influenced by the conception of study as mastery of book materials, listening to lectures, preparing oral and written reports, preparing for and taking formal examinations, etc. They do represent, however, some of the genuine and important improvements in the older process.

The modern school identifies study with learning. Developing study habits is as wide as the total list of activities utilized in learning. All the traditional items listed above are accepted, plus many others arising out of the cooperative, interactive, experiencing activities of the learner. We need not repeat the total list here since it has been included more than once in earlier chapters. Prominent items will be the cooperative identifying, defining, and analyzing of problems, the cooperative planning of means of solution, judging materials and processes, aiding in group decisions and in carrying plans through, planning interviews, observational visits, experiments, constructing apparatus, planning and constructing exhibits, and many, many others.

Guidance for the teacher in either type of school. From the beginning there have been two methods of bringing study supervision or guidance to the pupil. *First*, supervision of study, individual and group aid, to students studying at their desks, and *second*, training in study habits during regular class procedures through good teaching. A later development of the second has been the direct teaching of study habits in courses designed for that purpose. The first developed in the traditional school; the second, in the modern. Both techniques are valuable and should be utilized as occasion demands. Teaching designed to develop independence in the use of study habits should be the typical procedure. There will still be need and place for specialized individual help and special practice under guidance. The following suggestions summarize this.

1. *Teach in such way as to utilize and give constant practice in numerous and varied study (learning) activities.* In the traditional school this necessitates attention to study aids and guides in the assignment, and the making of assignments which give practice in varied study activities as indicated in the previous chapter. The traditional formal question-and-answer recitation will need to give way to more socialized forms and to working periods, as indicated in the following chapter. In the modern school good functional teaching will care for the initial stages and for much development. Diagnosis of difficulty and special individual help will supplement this. In either school there should be a sufficient

variety of activity to meet individual differences in study interests, abilities, rates, levels of achievement, and the like.

2. *Be sensitive to and diagnose cases of inefficient study or actual ignorance of study procedures.* Ample evidence shows that difficulty with study is not at all confined to the dull, the lazy, and the uninterested. Many of the bright, willing, and interested students need much specific, detailed help with study skills.⁷

Teachers need to be constantly on the alert to detect in class discussions, in papers, and in all contacts with pupil, evidence of poor study habits, or of ignorance of them. Much can be learned from recitation procedures, remarks, curious errors, etc. In addition a number of investigations have been made of pupil procedures. From these we derive methods of diagnosis. The chief ones are (a) questionnaires to the pupils⁸ about their study habits, (b) interviews with students, (c) observation, (d) test, and (e) analysis of students' schedules, outside activities, etc.

Diagnosis by means of interviews, observation, and analysis of scheduled activities and time distribution is self-explanatory in the main. Good teachers can devise means of their own and can secure guidance from periodical literature. Questionnaire analyses are also fairly simple. The teacher may make out a list of questions to be checked or answered briefly by pupils. Direct inquiry can be made on the presence or absence of certain study habits.

Analysis by direct testing is perhaps the most reliable. In the 1939 bibliography Hildreth⁸ lists twenty-two instruments for testing study habits. Some of these cover a wide range; others are designed to test in detail one important skill with its sub-divisions.

Tests of Use of Books and Libraries, by V. Barker. Ref: Barker, V., "Informal testing of the use of books and libraries," *Elementary English Review*, 1933, 10, 143, 174, 205

Philadelphia Index and Dictionary Test, by the Board of Education and H. Barthelme. Philadelphia: Division of Educational Research, Board of Education, 1934

Philadelphia Test in Outlinig, by H. Barthelme. Range: grade 6. Philadelphia, Pa. Division of Educational Research, Board of Education.

Diagnostic Tests to Determine Knowledge of Study Tools and Techniques in the Social Studies, by G. Boyington. Ref: Boyington, G. "Experiments with diagnostic tests to determine knowledge of study tools and techniques in the social studies," *Second Yearbook, National Council for Social Studies*, 1931-32, 132-163.

Biggs Dictionary Test, by T. H. Biggs. Range: junior and senior high school, New York. American Book Co., 1923. Ref. Briggs, T. H. A dictionary test. *Teachers College Record*, 1923, 24, 355-365.

Cavins Dictionary Test, by E. W. Cavins. Range: elementary and high school. Normal, Ill. E. W. Cavins, Illinois State Normal University, 1926

Chicago Sustained Application Profile Sheet. Chicago. University of Chicago Book Store.

⁷ Raleigh Schorling, *Student Teaching* (New York, McGraw-Hill Book Co., 1940). Pages 129-133 contain an excellent compact listing of numerous study activities gathered through observing pupils at work.

⁸ Gertrude H. Hildreth, *A Bibliography of Mental Tests and Rating Scales*, Second Edition (New York, The Psychological Corporation, 1939), pp. 155-156.

- Clatworthy, *Library Test for College Students*, by L. M. Clatworthy. Denver, Colo.: University of Denver Library, 1932.
- Denver Curriculum Dictionary Test. Range: grade 7A. Denver, Colo.: Denver Public Schools, 1927.
- Denver Curriculum Test in Library Science. Range: grade 7B. Denver, Colo.: Denver Public Schools, 1926.
- Studiosness Rating Scale, by A. C. Eurich. Ref: Eurich, A. C. "An analysis of self-ratings on studiosness traits," *Journal of Applied Psychology*, 1930, 14, 577-591.
- Study-Habits Questionnaire, by M. E. Herriott. Ref: Herriott, M. E. "Attitudes as factors of scholastic success," *University of Illinois Bulletin*, 1929, No. 47.
- Illinois Diagnostic Study Tests. Range: college. Urbana, Ill.: Bureau of Educational Research, University of Illinois.
- Attitudes and Skills in the Use of References: Every Pupil Test, by E. E. Lewis. Range: grades 5-8, 9-12. Columbus, Ohio: Ohio Scholarship Tests, Department of Education, State of Ohio, 1935.
- McClusky-Dolch Study Outline Tests, by F. D. McClusky and E. W. Dolch. Range: high school and college. Bloomington, Ill.: Public School Publishing Company, 1926. Ref: McClusky, F. D., and Dolch, E. W. "A Study outline test," *School Review*, 1924, 32, 757-772.
- Study Outline Test, by J. M. Stalnaker. Ref: Stalnaker, J. M. "American Council psychological examination for 1926 at Purdue University," *School and Society*, 1928, 27, 86-88.
- Studiosness Questionnaire, by P. M. Symonds. Ref: Symonds, P. M. "Studiosness questionnaire," *Journal of Educational Psychology*, 1928, 19, 152-167.
- Study Performance Test, by H. A. Toops, and the Committee on College Entrance, Ohio State University. Range: college. Columbus, Ohio: Ohio State University, 1931-1932.
- Tyler-Kimber Study Skills Test, by H. Tyler and G. C. Kimber. Range: high school and college. Stanford University, Calif.: Stanford University Press, 1938.
- Reading Study Habit Scale (Preliminary), by C. Woody. Range: elementary school or higher. Ref: Woody, C. "Results of the testing program in the Ironwood Public Schools" Ann Arbor: Bureau of Educational Reference and Research, University of Michigan, Bulletin No. 146, 1933.
- Study-Habits Inventory, by C. G. Wrenn and R. B. McKeown. Range: grade 12 and college. Stanford University, Calif.: Stanford University Press, 1933-1934.
- Young-Estabrooks Scale for Measuring Studiosness by Means of the Strong Vocational Interest Blank for Men, by C. W. Young and G. H. Estabrooks. Range: high school and college. Stanford University, Calif.: Stanford University Press, 1936.
- Ref: Young, C. W., and Estabrooks, G. H. "Report on the Young-Estabrooks Studiosness Scale for Use with the Strong Vocational Interest Blank for Men," *Journal of Educational Psychology*, March, 1937, 28, 176-187.

Other tests are constantly appearing. Probably the most important addition to those listed above is the *Iowa Every-Pupil Test of Basic Skills* which contains one section on *Work-Study Skills*.⁹ There are two batteries, one for grades 3, 4, and 5; the other, for grades 6, 7, and 8. Detailed tests are presented for map-reading skills, use of references, use of the index, use of the dictionary, use of graphs, charts, etc. Another new test by Edgar and Manuel includes in addition to the commoner skills mentioned above a test for critical thinking in the use of printed materials.¹⁰ A new test on the college level is the *Southeastern Aptitude Examina-*

⁹ H. F. Spitzer; *Iowa Every-Pupil Tests of Basic Skills: Advanced Battery; Elementary Battery* (Boston, Houghton Mifflin Co., 1940).

¹⁰ J. W. Edgar and H. T. Manuel, *A Test of Study Skills* (Austin, Texas, The Steck Co., 1940).

tions which has a brief study-skill section.¹¹ It is to be noted also that many of the ordinary achievement battery tests include a section on work-study skills both for general range and for some specialized habits.

A large literature has developed around the use of these tests and the results secured. This material can be sampled to advantage through class reports. One of the tests may be administered to the class.

3. *Give direct, specific help in terms of individual or group needs as revealed by diagnostic methods.* The numerous investigations of direct methods of giving help justify the conclusions that (a) a combination of reading about and discussion of study habits plus direction through definite assignments is superior to assignment-recitation procedure without definite study directions; (b) definite practice in study procedures is superior to reading about and discussion of methods of study; (c) ability to carry on certain study procedures is specific as far as that study process is concerned, although there is transfer under certain methods of instruction; (d) bright, interested students profit rather easily from reading about and discussing study habits; but dull, backward, and uninterested students do not; (e) dull or uninterested students profit from definite, directed practice. All students benefit from practice but it is necessary for the dull.

(1) *Reading about and discussion of specific study difficulties.* The teacher must have time to work with pupils in slow, painstaking discussions of difficulties and methods of improvement. She must be reasonably expert in discovering the mental processes of her students. This will yield sensible explanations of what often appear to be nonsensical statements made by pupils. As indicated in the chapter in teaching, the ideal is guidance without dominance. The aim is to enable the pupil to find and correct his own difficulty and thus gain in power. Each student should be stimulated by questions keyed to his level of maturity and insight to display the highest level of analysis and self-dependence of which he is capable. Guidance must never fall into the error of doing the work for the pupil.

The chief difficulty with supervised study literature is, as has been stated, the lack of detailed discussion of actual procedure in individual cases. Usable material would consist of stenographic accounts or teacher logs of hundreds of actual cases of pupil difficulty and teacher-help. It would be a voluminous piece of writing and take many months to compile from accounts furnished by scores of teachers. The best that can be done here is to give some random illustrations and to discuss some general principles as definitely as possible.

Lack of interest. Many study difficulties with bright and dull students alike arise, not because the pupils are incapable nor because the material is too difficult, but because there is no desire to do the work. The student may even think he is trying to work but there is no real underlying

¹¹ Published by University of Georgia Press. No date given.

drive. This is not uncommon and is quite natural in the traditional school which places the center of gravity in the subject and not in the pupil. The teacher's task is then to make some connection between the material and the pupil's real interests and purposes. Failing to make the intrinsic worth of the material clear, she will have to turn to secondary or extrinsic motives. The preparation of provocative and interesting questions and exercises is one device. An interesting activity once started supplies considerable momentum and generates interest. Tactfully bringing their own deficiencies in reading, in ability to use libraries, research aids and the like to students' attention will often stimulate worthy effort. The use of socialized recitations, visual materials, construction projects, and the like will stimulate many individuals. Individual graphs of progress are another legitimate aid. Commendation for good work is effective with most, hence provision for opportunity to succeed is important. Incentives which should not be used are threats, personal appeals, individual rivalries, marks. The chief motive is the realization by the pupil that the material will serve one of his purposes. Hence the stress of the new school on pupil purpose.¹²

Occasionally a case of 'disinterest in study is a disciplinary one and must be dealt with accordingly. In any event the student's attitude toward study is vital, and the ingenious teacher will examine it.

In some instances the teacher's help will be directed at correcting out-of-school conditions responsible for lack of interest. Nutritional deficiencies, too much outside work or social activity, indifference of the home, poor mental hygiene, emotional stresses, and scores of other factors are inimical to good study attitudes. Many seemingly dull pupils are made over through remedial measures applied early enough. As an extreme case may be cited a little girl who was regarded as permanently retarded because she could learn so little so slowly. Inquiry revealed that her father, with an emotional antagonism to eating candy or sugar, had denied the child a normal sugar intake. With this remedied, the girl approached normal learning activity. This is an extreme case, but many outside factors seemingly far removed must be taken into account.

Inability to see the problem clearly. Many pupil difficulties in studying resolve themselves into a lack of understanding of what to do. Even when the assignment is definite and seemingly clear to all, there will be a few individuals who do not know what to do and do not know exactly what their trouble is. This usually occurs in pupils who, having had everything done for them by parents, have escaped responsibility and initiative. The long-term treatment will involve training in the range of study habits. For the moment the teacher is justified in giving direct assistance. The problem and methods of procedure simply have to be explained in words of one syllable, illustrations given, direct suggestions

¹² There are literally hundreds of research studies on all aspects of motivation. This abbreviated and superficial summary is derived from them.

made as to sources, methods, etc. Care must be taken, of course, to differentiate legitimate cases from lazy, inattentive students whose difficulties are not those of the type just discussed.

Breslich¹⁸ reports a case in which parents complained that too many problems were assigned and no suggestions given. The teacher, much surprised, outlined his explicit method of assignment, in turn surprising the parents. The student admitted hearing all this but did not see how it related to her problems. Here was a more than ordinarily serious case of inability to see problems, to connect directions with problems, to analyze. It may even have involved lack of growth in good language habits, thus resulting in inability to understand anything except simple sentences. Training must be specific and long-term.

Lack of knowledge of sources and how to use them. This is far more common than is supposed, often appearing among beginning graduate students. Some students are unaware that more information is needed. Others knowing that it is needed do not know where to get it. Still others know vaguely that dictionaries, cyclopedias, the atlas, periodical indexes, etc., are available but do not know how to use them economically, if at all.

A graduate student prepared a bibliography of magazine references on a topic and then reported to the writer that none of the references was in the library! Asked where he had looked for guidance in locating them he replied, "In the card catalogue." Asked if he had not noted in the *Readers Guide* after each reference he had listed such abbreviations as "Sch & Soc," "Sch Rev," "Ele Sch Jrnl," "Rev of Ed Res," he replied that he had, but not knowing what they meant he had paid no attention to them!!

Definite references in the assignment are a beginning step. Later definite training in finding sources may be given. Independence in finding a range of sources should result. Direct teaching is necessary in the use of dictionaries, cyclopedias, indexes, guides to periodical literature, standard volumes such as the *World Almanac*, *Who's Who*, and anthologies.

Finally, students must be trained to judge sources critically. During a study of United States-Mexican relations at the time of the border clashes during World War I, a girl stated that the best way to help Mexico would be to send an army to clean up the country. Asked why, she said her parents and others had said that Mexico was a small place about the size of Arizona and that we could put it in order quickly. Instead of rejecting this or arguing about it, the teacher apparently accepted it and asked the pupil to prepare for the class a series of statements comparing Mexico with other countries in regard to area, popu-

¹⁸ E. R. Breslich, "Supervised Study as a Means of Providing Supplementary Individual Instruction," *Thirteenth Yearbook of the National Society for the Study of Education* (Chicago, University of Chicago Press, 1914). See also "Teaching High-School Pupils How to Study," *School Review*, Vol. 20 (October, 1912), pp. 506-515.

lation, transportation, topography, etc. After a session with cyclopedias, atlases, and other reference books, the pupil came back not only with more accurate information but with a wholly changed attitude toward sources. This incident points a slogan which should be used not only in school but elsewhere. "Do not argue; look up the facts." So much discussion is nothing more than the irresponsible exchange of silly opinions.

Inability to judge the worth of facts. Pupils (and adults) who say, "It says so in the book," "I read it in the paper," are obviously not discriminating either sources or facts. Even worse are students who try to remember everything read upon a topic, who advance one fact as of equal value with any other. Sometimes a fact insisted upon by a pupil may be so inconsequential that it could be totally eliminated without loss to the lesson. Major and minor facts are listed coordinately or interchanged in outlines. This situation is extremely difficult to remedy. Probably the most useful approach is through questioning and conversation, not by argument or direct correction. The pupil should be asked to show in his own words why he regards one fact as good as another. The "if that, then this" technique may be used with good students. The process is to reduce one of his statements to absurdity by showing that if he believes something he is insisting on then he inevitably must believe this other direct implication. The direct implication should be one that is improbable, ridiculous, or impossible. Asking students to show the exact relationship between facts and the question under discussion often helps to indicate that not all facts are equal although related to the problem. Eventually training in rapid reading, skimming, outlining, etc., helps.

A sixth grade was given several sources and asked to select just those facts which bore on the lesson. One boy said, "How do you know what is wanted?" whereupon another answered immediately, "You can tell by looking at the set of questions we just put on the board." Later there was a discussion about selecting "main thoughts" from pages or paragraphs whereupon the first boy said, "What gets me is how you know your main thought." Class and teachers suggested the following aids: "Do these facts relate to the problem?" "Do they aid in answering any of the study questions?" "Do they seem to contradict any other facts you have gathered?"

Difficulties with analysis. The foregoing paragraph leads over into another common and serious difficulty. The procedure in modern schools, which is also coming to be used in older ones also, of having the pupils suggest sub-questions which must be answered in the course of solving the main problem is extremely helpful. Class and teacher together work out a list of questions on the board and reorganize them into related groups. Often the difficulty is with language. Vast numbers of schoolboy "howlers" result from the natural interpretations placed by immature minds upon complex discourse. These remarks are clues to

the alert teacher. One student reported that the Battle of Bunker Hill was the only victory the British had won during the Revolutionary War. Questioned by his schoolmates he pointed to the text which said, "The British cared for no more victories at such a cost." Hasty and poor readers are regularly confused by negative statements and by indirect metaphoric discourse of any kind. The need for training in the several kinds and levels of reading is indicated.

In mathematics (but not in beginning arithmetic) it is helpful to ask a student to state exactly what he is trying to find out, in what terms the answer is likely to be, and what processes will likely lead to the answer. Training in regularly checking processes and results is beneficial.

A college team playing hockey found that they could secure the ball and work it down the field again and again only to fail in shooting goals. A conference for analysis was called. The forwards doing the shooting were unable to analyze the difficulty but a half back standing directly behind the line of play discovered that the forwards in shooting goal shot straight at the guards every time instead of shooting at open spaces between guards. A dub golfer of the writer's acquaintance was once asked how he kept out of sand traps so much better than did more expert players. He replied that he always aimed straight at traps since he had discovered that his ball never went where he aimed it! He had been "studying" his golf.

Difficulties arising in drawing inferences or making generalizations. Closely related to the foregoing difficulties in using sources, evaluating materials, and analyzing problems are the problems attendant upon using all this in coming to a conclusion. Errors range from reasonable but incorrect inferences to wild guesses. Before aid can be given, the teacher must diagnose the causes of the error or impossible guess. Sometimes no sensible basis will seem possible, but skillful questioning by the teacher done sympathetically will usually reveal one. Failing to discover through analysis the pupil's thought process, he may ask the pupil to show in his own words the bearing of the information gathered on the conclusion he has reached. Part of the difficulty is the inability of young pupils to suspend judgment.

Students who make honest though highly illogical inferences must be distinguished from talkative, superficial bluffers, or those who were not paying attention and hence guess wildly. Holding the latter relentlessly to an analysis and explanation of their own statements is a good device.

It should be noted also that some dull or slow children make wild guesses simply because they cannot keep up with the thought of the class but nevertheless wish to be participating. Sympathetic assistance and the provision of opportunities for success on their level will eliminate this.

The discussion of the foregoing six items is hopelessly brief and inadequate. It is for illustrative purposes only. An adequate discussion

would fill volumes. Every teacher will profit through alert analysis and recording of her own experiences. The foregoing pages may assist in starting the process.

(2) *Special practice in specific habits.* Numerous investigations show clearly that definite, systematic practice in meaningful situations will improve the study and learning of all pupils, particularly the slower.

As far back as 1923 Beauchamp¹⁴ demonstrated that even the more complex skills could be improved under guidance. In a controlled experiment of considerable size, his experimental groups showed substantial gains over control groups in four significant and difficult skills. These were (a) studying a paragraph to determine its central idea and then picking out the outstanding ideas of the paragraph, (b) formulating questions one must be able to answer thoroughly to understand a topic, (c) reading a unit entirely through to determine the general plan of the unit and then grouping the major facts presented around this plan, (d) giving the pupils a method for solving thought questions.

The value of practice in systematic outlining and in note taking, especially in covering extensive materials, has been demonstrated by several studies, particularly those of Butterweck and of Barton.¹⁵ Literally scores of studies have been made on the methods and results in improving reading skills of all kinds and on all levels. Classes for the improvement of reading skills as an aid to study are now found in many colleges.

A recent study by McKinnon and Burton¹⁶ evaluated the effect of definite detailed instruction in certain specific study processes in history at eighth-grade level. Four processes were used: (a) comparison, (b) identifying and expressing cause-and-effect relationships, (c) outlining, and (d) selecting and organizing subject-matter from several sources. Each of these processes was broken down into sub-processes. For instance, comparison included six: (i) ability to discover basis for comparison, if there be comparable facts, (ii) ability to select the distinguishing characteristics present, (iii) ability to classify the distinguishing characteristics present, (iv) ability to list likenesses, (v) ability to list differences, (vi) ability to formulate a summarizing statement. All this may sound simple, but it is astonishing how many graduate students when asked to contrast items will list similarities or will list differences when asked to show similarity.

¹⁴ Wilbur L. Beauchamp, *A Preliminary Experimental Study of Technique in the Mastery of Subject Matter in Elementary Physical Science*, Supplementary Educational Monographs No. 24, Studies in Secondary Education, I (Chicago, University of Chicago Press, 1923).

¹⁵ Joseph H. Butterweck, *The Problem of Teaching High-School Pupils How to Study*, Contributions to Education No. 237 (New York, Teachers College, Bureau of Publications, 1926).

William A. Barton, *Outlining as a Study Process*, Contributions to Education No. 411 (New York, Teachers College, Bureau of Publications, 1930).

¹⁶ Nettie J. McKinnon and William H. Burton, "An Evaluation of Certain Study Procedures in History," *Elementary School Journal*, Vol. 40 (January, 1940), pp. 371-380.

Each of the skills was made the object of definite instruction in conjunction with regular lessons in history. The results were:

Based on data similar to the foregoing and on all four techniques mentioned, the following conclusions seemed justified: (1) Definite detailed instruction in the designated techniques of study in history definitely improved the pupils' ability to use those techniques, as well as their ability to use the sub-processes (2) In the case of factors and sub-processes which are mechanical in nature, the effect of corrective exercises appears earlier and mastery is more complete than in the case of factors which involve thought content. (3) Instruction in three of the study techniques, namely, sensing cause-and-effect relationships, outlining, and selecting and organizing materials, had a beneficial effect on ability to make comparisons. The first three focus attention on sub-processes which are important in comparison. (4) Ability to outline varies in proportion to the number and kinds of mechanical aids which are supplied by the material, namely, paragraph and topical heads, marginal comments, table of contents, etc. (5) Mechanics of outlining can approach mastery with children of eighth-grade level. (6) Increased ability in outlining in other subjects. (7)* Selection and organization of material on a given problem presents greater difficulty (for eighth-grade pupils) than does the objective representation of an author's thought relationships, as, for instance, in outlining (8) The trial-and-error method of procedure in the various types of mental activity required in study procedures is wasteful of the pupils' time. (9) Exercises requiring an evaluation of material, such as discrimination between major and minor points, offer difficulty to eighth-grade pupils. (10) The number of errors in a given exercise varies directly in proportion to the length and the complexity of the exercise

The following problems are suggested for further investigation:

1. How close could mastery, or nearly perfect facility, be approached in given study procedures? What additional instruction and practice would be necessary?
2. What are the specific difficulties present in the inability of pupils to cope with problems of sentence structure?
3. How many items may be included within the span of attention of pupils of given levels? That is, how long and how complex may exercises be at given levels?
4. What factors, if any, other than inability to comprehend are present in the omission of major and minor points?
5. What further transfer might be expected with the improvement of still other study techniques?
6. How would the use of carefully weighted materials and exercises affect the findings on a given study technique?

Improvement by this route necessitates the organization by the teacher of systematic opportunities for practicing the skills selected for improvement. Preferably this should be in conjunction with the regular teaching of assigned lessons.

An unusually well prepared and provocative example of prepared opportunities for practicing study skills on the college level is to be found in Francis P. Robinson's *Diagnostic and Remedial Techniques for Effective Study*.²⁷ This is a new type book which it is to be hoped will be

²⁷ New York, Harper & Bros., 1941.

the forerunner of many others like it. It is neither text nor workbook though containing many features of both. It cannot be used by a student alone, but is designed as a working aid for student and study coach or counselor.

4. *Organize a definite course in how-to-study.* This fourth item is not coördinate with the preceding three. Organized courses are over and beyond the suggestions given above and will be organized in those situations which need them. They have appeared separately in many high schools and colleges and seem to be increasing. The material usually found in such a course is rapidly gaining a place as a part of the core curriculum in secondary schools, as part of freshman week, or as orientation courses on the college level.

The chief difficulty is that of coördinating the content of such a course with the regular subjects. No type of learning can be developed in isolation from material to be studied. Ideally, all training in study skills should be carried on in regular courses. Many teachers, however, are not able to do this. Compromises are necessary. Several methods of managing the course have emerged.

First, the course may have its own content, the study techniques, which may be examined and operated in practice exercises. The assignments in the regular subject courses would be used as illustrations when and as desired. *Second*, the entire how-to-study course may be coördinated with the usual assignments in regular courses. The subject-matter courses furnish the core with appropriate study skills developed systematically through giving assistance with the regular assignments. *Third*, the how-to-study course may devote three days a week to developing study skills while assisting with regular assignments, and two days to direct attack on its own material. Which organization is used depends upon the ability, insight, and attitude of the personnel concerned. On the one hand some teachers are not able to assist through coördinating their regular work because they lack skill in modern assignment-recitation procedures. On the other hand it is very difficult for one person to give study helps to all pupils in all subjects.

Advantages of the how-to-study course. Combining statements from Brink and Frederick, Ragsdale, and Salisbury, the following advantages are claimed:¹⁸

1. It centralizes responsibility in one or at most a few individuals.
2. Different subjects have many common study techniques.
3. It places responsibility for improving study habits in the hands of a specialist who has had definite training for the work.
4. It makes possible the coördination of efforts toward improving study habits within the school.
5. It makes possible much needed research in the field.
6. It offers a new approach with accompanying enthusiasm.

¹⁸ William G. Brink, *op. cit.*, p. 56.

Frederick, Ragsdale, and Salisbury, *op. cit.*, pp. 281-282.

7. It adds valuable material to the general education of pupils, useful in general life activities.

8. It will have immediate as well as deferred value, hence will be attractive to the students.

9. It will aid in showing the student that the school is essentially friendly and disposed to aid him with difficult problems, that is, how to get his lessons.

10. It will reduce failures and improve mental hygiene.

11. It will save much time for students and teachers.

12. It invites public support since parents are already suspicious of home assignments and pupil difficulties.

13. It will aid in showing students that study is not peculiar to the school, but must be done effectively in all life activities.

Limitations and objections to the course. Similarly, a list of limitations includes:

1. It is nearly impossible for one person to teach all pupils how to study.

2. It is almost impossible to tie up study suggestions with the specific study situations presented in each of the different subjects.

3. It may tend to cause subject teachers to shirk their responsibilities for directing the development of study habits.

4. It is difficult to obtain a teacher capable of offering such work effectively.

5. Smaller schools often cannot afford to offer such a course.

As distinguished from limitations, certain criticisms and objections appear:

1. Such a course is unnecessary since each pupil will develop his own methods of study. (He will and his methods will more than likely be wasteful and inefficient.)

2. A study specialist, introduced into a school, may cause friction. (He might, but ordinarily teachers will welcome any sensible help with their problems.)

3. The program is overcrowded and another course merely makes it that much worse. (Much dead and useless material could well be eliminated to make room.)

4. The course would not receive credit for college entrance. (This is merely one more instance of arbitrary requirements stupidly interfering with education. The entrance requirements are progressively changing to become more rational.)

Experimental data on the value of the how-to-study course. As with many other educational problems there has been some experimental research. The results are in the main favorable to such a course. With refinements in the course and its operation the evidence is likely to be more conclusive. Several individual findings over and above the general favorable results will be mentioned. Mills found that the how-to-study course had no beneficial effects upon pupil achievement when the course was taught by some one not a member of the regular high-school staff, when taught as an academic subject, unsupplemented by any guidance or stimulation of the students outside the work of the course.¹⁰ On

¹⁰ H. C. Mills, "How-to-Study Courses and Academic Achievement," *Educational Administration and Supervision*, Vol. 21 (February, 1936), pp. 145-151.

the college level Bird²⁰ found evidence of the value of the course and also that the more capable students profit most. This latter is in contradiction to general findings in the lower schools but may be due to greater maturity of the students or to some special feature of the course. Winter found, in line with general findings, that the greatest profit was among students in the lower decile-and-a-half.²¹

Pressey has carried on a number of experiments with failing students on the college level. In one case thirty-one students about to be "flunked out" of college were given systematic training in the types of study required in college.²² Twenty-six of them went on to achieve satisfactory standing in college. In another case she gave the training to fifty students on probation but not to a control group of similar individuals. Three-and-a-half years later 58 per cent of the trained group had either left college with satisfactory grades or were still in college with passing marks. Only 18 per cent of the untrained group did as well. Of the trained group 20 per cent graduated but no one in the untrained group persisted that far.²³

Valuable and up-to-date summaries of how-to-study courses in high school and college are available in current periodicals.²⁴

Home study. The volume by Brink does not contain this topic in the index. Frederick, Ragsdale, and Salisbury devote seven pages to listing the claimed advantages and disadvantages with reference to a few experimental studies. These will not be summarized here since the arguments seem clearly opposed to home study. The few statistical studies show that home study is not a significant factor in affecting the achievement of pupils. Results are about the same with or without home study.

There is, however, one aspect of this item which must not be overlooked. Home study of the traditional formal sort may be dispensed with as far as the evidence now shows; however, as we move over toward modern teaching which identifies study with learning and which utilizes not one or two but a large number of varied study activities, a different

²⁰ Charles Bird, *Effective Study Habits* (New York, D. Appleton-Century Co., 1931), p. vi.

²¹ John E. Winter, "An Experimental Study of the Effect on Learning of Supervised and Unsupervised Study among College Freshmen," *Journal of Educational Psychology*, Vol. 27 (February, 1936), pp. 111-118.

²² Luella C. Pressey, *Research Adventures in College Teaching* (Bloomington, Ill., Public School Publishing Company, 1927).

²³ Luella C. Pressey, "The Permanent Effects of Training in Methods of Study on College Success," *School and Society*, Vol. 28, 1928, pp. 403-404.

²⁴ W. W. Charters, "Remedial Reading in College," *Journal of Higher Education*, Vol. 12 (March, 1941), pp. 117-121.

Frank W. Parr, "The Extent of Remedial Reading Work in State Universities in the United States," *School and Society*, Vol. 31 (April 19, 1930), pp. 547-548.

J. W. Sherburne, *Problems and Outcomes of a College Remedial Program*. Unpublished doctoral dissertation, Ohio State University, 1938, pp. 8-36. See volumes of research abstracts for a summary.

Ruth Strang, *Reading in High School and College* (New York, The Science Press, 1940), pp. 136-177.

situation emerges. If we are to develop independence in attacking and studying problems, and if learning is to approximate life situations, then there must be continuous interaction between the pupil and his total environment. In carrying on modern teaching-learning situations there will be many things to be done outside school. These will not even resemble the home study of the formal school.

Initiating a program of guided study. Earlier supervised study and guided new type learning and study suffered, as have all new movements in education, from ill-advised introduction. Enthusiastic principals and superintendents come home from a summer-school course in modern methods and arbitrarily introduce a new departure into a situation wholly unprepared for it. The story is told of a superintendent who announced to the teaching staff one Friday, "Beginning Monday we will proceed on the supervised study basis." A school board of the writer's acquaintance called its superintendent in and said they wished the curriculum and methods brought up to date. They wished a complete new curriculum to replace the old formal one—"and have it done by the last of next month"!!!

All new departures must be studied systematically, the local situation must be prepared, teaching and staff and community given time to discuss and understand. Administrative adjustments and processes come last.

In many places where supervised study was introduced hastily, the teachers have actively opposed it, or have refused to cooperate, or have hailed it as a relief from work. Pupils were turned loose to "study" while teachers read newspapers, marked papers, visited, or did their own work. Communities to whom the new movement was not explained condemned it without investigation as a fad or frill. Pupils to whom explanation and training were not given failed to participate and often did poorer work than before. Any new departure needs careful preparation before introduction. The following preparations should precede the introduction of supervised or guided study:

1. Systematic study of the item with special reference to the local situation.
 - a. By administrative staff of the nature of supervised or guided study, obstacles, difficulties, advantages, plans now in operation
 - b. By teaching staff of the nature of learning, of study, of development of independence in study skills
2. Explanation to community to ensure understanding and support
3. Explanation to student body to ensure understanding and participation
4. Provision of administrative mechanisms, materials, etc., in advance
5. Provisions of a systematic set of records of procedure and results

DISCUSSION QUESTIONS

1. John left Central Square at 9 A.M., riding a bicycle whose wheels were each 30 inches in diameter. He rode for two hours, pedaling at a rate of 90 revolutions of the

Examine this problem—disregarding its value as a problem.

Make an organized list of suggestions you would use to start a pupil who

rear wheel per minute. After stopping to rest for 20 minutes, he continued, but at a rate only $\frac{2}{3}$ as fast.

Fred started from Central Square at 10 A.M., followed the same route that John did for one hour; then he rode a mile off the road and a mile back again. He then continued after John. His wheel was so geared that each revolution of the crankshaft carried him the same distance as a wheel 72 inches in diameter would carry any one in a single revolution.

He pedaled throughout at a rate of 36 revolutions of the crank per minute. How far behind John would he be at 12 o'clock?

was unable to proceed for himself.

Be able to classify your suggestions in terms of thought stimulation.

At what points would the average student be likely to go astray? Locate these and work out suggestions you would make to assist him.

(A good device would be to get a seventh- or eighth-grade pupil to work the problem for you while you endeavor to assist him.)

2. The foregoing question appeared in the 1929 edition of this volume. The writer would not now use it as it stands. Indicate how it should be changed to be usable under the principles of modern education.
3. Explain the following situations:
 - a. In a supervised study hour many hands were up; there was a continuous call for the teacher's guidance. Pupils did little until the teacher came to them, and soon needed help again.
 - b. Parents welcomed supervised study as a modern procedure; but soon they noticed that the children were not learning; in fact, their standard scores were lower than those of the children in neighboring cities.
 - c. A superintendent refused to introduce supervised study, saying that it was a waste of time where he had observed it—that teachers merely used the time to correct papers, to prepare other lessons, to read books, etc.
4. List a number of dangers which superintendents and teachers are likely to fall into in introducing and carrying on supervised study.
5. Recall and be ready to describe cases in your own study where you would have liked a little explanation or help from a teacher.
6. Recall and describe some cases where you were in a position to get help and did receive it.
7. Sight specific cases in which the instructor's assignment affected, for good or ill, your studying.
8. Do likewise for her handling of the recitation.
9. What is your candid reaction to definite programs of study, study rules, etc.? List advantages and disadvantages.

EXERCISES AND REPORTS

1. Summarize a number of recent articles which present evidence showing that pupils do not know how to study, have inefficient study habits, etc.
2. Collect and analyze several sets of study rules, especially recent ones. Make an oral report with perhaps a mimeographed set derived from the analysis.

3. Interested individuals or small committees may summarize recent discussions of any of the administrative schemes listed on page 328.
4. Make an oral class summary of any current stenographic accounts or other detailed case studies of actual technique in aiding individuals or small groups with study difficulties.
5. Examine several listings of general study habits or skills. If necessary, suggest changes in the list given in this chapter. Present to class any new ideas, different forms of organization, etc.
6. Interested individuals or small committees may organize lists of special study skills peculiar to their major subjects. (A number of reports should be made covering important subjects. Reports should be extremely critical in distinguishing the special from the general skills.)
7. Where conditions permit, students may assist in diagnosing study difficulties of an elementary- or secondary-school pupil, or of a class. Report procedures and results to class.
8. The instructor may administer to the class study-skill tests on the college level, compile results, and analyze through class discussion.
9. A small committee may report later on specific remedial measures applicable to any of the weaknesses revealed by diagnosis.
10. An individual may report recent articles describing provision for practice in given specific habits, outlining, memorizing, note taking, map-reading, various forms of reading, etc., etc. This can be a very valuable report.
11. An individual may report recent literature on the how-to-study course.
12. An individual or small committee may report on the new reading courses appearing in high school and college. This is a very important new development.
13. An individual may summarize the arguments and the experimental studies (making careful distinction between them) on home study. This might be thrown into the form of a talk before a parent-teacher association.
14. An individual may report any current accounts of the planned introduction of a study program into specified school systems.
15. An individual, or several, may organize the type of data, the questions, and other items which might be used in the assembly presentation designed to introduce a new study program to high-school students. (This report permits of considerable originality of form and content.)
16. Work out a series of questions which you might ask a fourth-grade child, a high-school freshman, a college freshman, in order to focus his attention and stimulate his thinking about any one of the following.
The necessity and value of:
 - a. Critical evaluation of what is read
 - b. Techniques for securing quickly the essential facts and ideas from a large mass of material
 - c. A diversity of sources
 - d. The possession of facts with which to support statements
 - e. Knowing what one is looking for in studying
 - f. Organization and system in studying
 - g. Any other study essentials as desired

READINGS

General Books on the Study Processes

- BIRD, Charles, *Effective Study Habits* (New York, D. Appleton-Century Co., Inc., 1931).
- BRINK, William G., *Directing Study Activities in the Secondary Schools* (New

- York, The Odyssey Press, 1937). Excellent and extensive bibliographies on all aspects.
- BROTEMARKLE, R. A., *How to Study* (Philadelphia, University of Pennsylvania Press, 1930).
- CRAWFORD, C. C., *Studying the Major Subjects* (Los Angeles, University of Southern California, 1930).
- , *The Technique of Study* (Boston, Houghton Mifflin Company, 1928). One of the first books.
- FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (New York, D. Appleton-Century Company, Inc., 1938). Excellent and extensive bibliographies. Summary bibliography at back.
- KITSON, H. D., *How to Use Your Mind* (Philadelphia, J. B. Lippincott and Company, 1926). One of the earlier summaries.
- PARR, Frank W., *How to Study Effectively* (New York, Prentice-Hall, Inc., 1938). Good.
- PITKIN, W. B., and others, *Learning How to Learn* (New York, McGraw-Hill Book Company, Inc., 1935).
- ROBINSON, Francis P., *Diagnostic and Remedial Technique for Effective Study* (New York, Harper & Brothers, 1941). College level.
- SALISBURY, Rachel, *Better Work Habits* (Chicago, Scott, Foresman and Company, 1932).
- SANDWICK, R. L., *How to Study and What to Study* (Boston, D. C. Heath and Company, 1915). One of the very first books of this type.
- WHIPPLE, Gertrude M., *How to Study Effectively* (Bloomington, Ill., Public School Publishing Company, 1929).

Specialized Treatments of One or More Items

The literature of this type is tremendous and steadily growing. The following list is but an illustrative sampling of good references to date. Class reports are provided to keep this material up to date for the class.

- ARKIN, Herbert, and COLTON, R. R., *Graphs, How to Make and Use Them* (New York, Harper & Brothers, 1936), Chaps. 1, 2, 14.
- BARTON, William A., *Outlining as a Study Process*. Contributions to Education No. 411 (New York, Teachers College, Bureau of Publications, 1930).
- BENNETT, H. K., "Teaching How to Study: Experience in Organizing, Summarizing, Outlining, and Evaluating," *Grade Teacher*, Vol. 59 (October, 1941), pp. 66-67.
- BENNETT, M. E., *College and Life* (New York, McGraw-Hill Book Company, Inc., 1938). Chap. 13 on use of library.
- BORAAS, Harold O., "A Comparative Study of the Brief, the Précis, and the Essay with Respect to Speed of Reading and Ease of Learning," *Journal of Educational Psychology*, Vol. 29, 1938, pp. 231-236.
- CHARTERS, W. W., "Remedial Reading in College," *Journal of Higher Education*, Vol. 12 (March, 1941), pp. 117-121.
- COOPER, C. W., and ROBINS, E. J., *The Term Paper, a Manual and Model*. (Stanford University, Stanford University Press, 1934). A good pamphlet prepared in form of a term paper.
- LEHMAN, H., and PRESSEY, Luella C., "The Effectiveness of Drill in Handwriting to Remove Specific Illegibilities," *School and Society*, Vol. 27 (May 5, 1928), pp. 546-548.
- LOGASA, Hannah, *The High School Library: Its Function in Education* (New York, D. Appleton-Century Company, Inc., 1928).

- , *The Study Hall in Junior and Senior High School* (New York, The Macmillan Company, 1938)
- McKINNON, Nettie J., and BURTON, William H.; "An Evaluation of Certain Study Procedures in History," *Elementary School Journal*, Vol. XL (January, 1940), pp. 371-380.
- NEWLUN, Chester O., *Teaching Children to Summarize in Fifth Grade History*. Contribution to Education No. 404 (New York, Teachers College, Bureau of Publications, 1930).
- PRESSEY, Luella C., and FERGUSON, J. M., *Students' Guide to Efficient Study* (New York, Harper & Brothers, 1941). Excellent. Full of diagnostic techniques, tests, etc.
- ROBINSON, Francis P., and HALL, Prudence, "Studies in Higher Level Reading Abilities," *Journal of Educational Psychology*, Vol. 32 (April, 1941), pp. 241-252.
- RYANS, D. G., *The First Step in Guidance: Self-appraisal*. Published in *Measurement and Guidance*, Cooperative Test Service, Series III, Vol. I, No. 1, 1941.
- , "Some Observations Concerning the Relationship of Time Spent at Study to Scholarship and other Factors," *Journal of Educational Psychology*, Vol. 30 (May, 1939), pp. 372-377.

A Statistical Study

- KILZER, Louis R., *Supervised Study* (New York, Professional and Technical Press, 1931). Contains résumé of statistical data to date of publication Poorly organized and uncritically interpreted in places but contains much useful information.

The periodical literature. This is far too extensive to list here or even to sample. Much of it will be covered through the class reports indicated.

Study Manuals

The following list of manuals was compiled by Laycock and Russell while doing the study referred to in footnote 5 on page 330.

- ALLEN, C. B., *Teaching of Study in Secondary Schools* (The author, Graduate School, Western Reserve University, Cleveland, 1939).
- BAKER, K. H., *Study Methods Workbook* (Burgess Publishing Co., 426 56th Street, Minneapolis, Minn., 1938).
- BENNETT, M. E., *College and Life*, Part III, *Learning in College* (McGraw-Hill Book Company, Inc., 1933).
- BENZ, H. E., and KNIGHT, F. B., *Efficiency Book for High School Pupils* (Chicago, Rand, McNally and Company, 1929).
- BERG, D. E., *Modern Student: How to Study in High School* (Universal Publishing Company, Forest Hills, N. Y., 1935).
- BIRD, Charles, *Effective Study Habits* (New York, D. Appleton-Century Company, Inc., 1931).
- BLUM, Lilian, and others, *Why Study and How* (Richmond, Va., Johnson Publishing Company, 1931).
- BOOK, W. F., *Learning How to Study and Work Effectively* (Boston, Ginn and Company, 1926).
- BRINK, William, *Directing Study Activities in Secondary Schools* (New York, Odyssey Press, 1937).
- BROENING, A. M., and others, *Reading for Skill* (New York, Noble and Noble, 1936).
- BROTEMARKLE, R. A., *How to Study* (Philadelphia, University of Pennsylvania Press, 1930).

- COLE, L. and FERGUSON, J. M., *Student's Guide to Efficient Study*, Revised edition (New York, Farrar & Rinehart, Inc., 1935).
- CRAWFORD, C. C., *Studying the Major Subjects* (Los Angeles, Cal., University of Southern California Press, 1930).
- CRAWFORD, C. C., *The Technique of Study* (Boston, Houghton Mifflin Company, 1928).
- CRAWLEY, S. D., *Studying Efficiently* (New York, Prentice-Hall, Inc., 1936).
- ELDRIDGE, A. C., and McVEY, William E., *You—and Study* (Columbus, Ohio, School Specialty Press, 1930).
- FREDERICK, Robert W., and BURTON, William H., *How to Study Handbook* (New York, D. Appleton-Century Company, Inc., 1938).
- , RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (New York, D. Appleton-Century Company, Inc., 1938).
- GABRIEL, Sister John, *Practical Methods of Study* (New York, The Macmillan Company, 1930).
- HOOVUS, Carol, *Following Printed Trails* (Boston, D. C. Heath and Company, 1936).
- JONES, E. S., *Improvement of Study Habits* (Buffalo, N. Y., Foster and Stewart Publishing Corporation, 1936).
- JORDAN, R. H., *How to Study* (Neenah, Wis., Banta Publishing Company, 1932).
- KAHN, Samuel, *How to Study* (Boston, Meadow Publishing Company, 1938).
- KORNHAUSER, A. W., *How to Study: Suggestions for High School and College Students*, Revised edition (Chicago, University of Chicago Press, 1937).
- MCNELLY, A. E., *Study Mastery* (Chicago, Lyons and Carnahan, 1932).
- MUSE, M. B., *An Introduction to Efficient Study Habits According to the Laws and Principles Governing Economic Learning* (Philadelphia, W. B. Saunders Co., 1929).
- NEAL, Elma A., and FOSTER, Inez, *Study Period Exercises* (Chicago, Laidlaw Brothers, 1932).
- PARR, Frank W., *How to Study Effectively* (New York, Prentice-Hall, Inc., 1938).
- PITKIN, W. B., and others, *Learning How to Learn* (New York, McGraw-Hill Book Company, Inc., 1935).
- RICE, O. S., *Lessons on the Use of Books and Libraries* (Chicago, Rand, McNally and Company, 1920).
- SALISBURY, Rachel, *Better Work Habits* (Chicago, Scott, Foresman and Company, 1932).
- , *Better Work Habits in Composition* (Chicago, Scott, Foresman and Company, 1935).
- SMITH, Samuel, and LITTLEFIELD, A. W., *Best Methods of Study* (New York, Barnes and Noble, 1938).
- STILLMAN, B. W., *Training Children to Study: Practical Suggestions* (Boston, D. C. Heath and Company, 1928).
- WALTERS, W. R., *Hints on How to Study* (Philadelphia, Westbrook Publishing Company, 1936).
- WHIPPLE, G. M., *How to Study Effectively*, Revised edition (Bloomington, Ill., Public School Publishing Company, 1927).
- WILEY, J. A., *Practice Exercises in Silent Reading and Study* (Cedar Falls, Iowa, Iowa State Teachers College, 1928).
- WOOLLEY, S. F., *How to Study* (New York, Pitman Company, 1936).
- WRENN, G. C., *Practical Study Aids* (Stanford University, Cal., Stanford University Press, 1931).
- YOAKAM, Gerald A., *Reading and Study* (New York, The Macmillan Company, 1928).

13

The Improvement of the Recitation

In 1897 there appeared a book entitled *The Method of the Recitation*.¹ In 1928 appeared *The Passing of the Recitation*.² The two volumes published a third of a century apart symbolize the revolution which has taken place in educational thinking. In 1897 the recitation was so important a member of the teaching-learning organization as to deserve a volume to itself. In 1928 the recitation was recognized by the leadership as being not merely outmoded but a definite detriment to learning. In 1935 Bossing³ made the statement that, "Among responsible writers in the field of secondary school methods the re-citation concept of the recitation has been *passé* for twenty years." And yet surveys indicate that the formal question-and-answer recitation based on meager text materials still predominates in practice. Of all the vestigial remains of prehistoric methods, the recitation is probably the most completely absurd; but if it must be used in many schools for whatever reasons, then we must endeavor to improve it as much as possible. In fact, many improvements have been developed.

The traditional recitation. The typical recitation period is one in which isolated, formal facts are called for. The study process is memorization. The basis is usually one text unrelieved by explanations or other references. No power of any value to the learner can result.

The word *recitation* is one of the most common terms in the educational vocabulary. If we break the word up into its parts: *re-citation*, we find that it is not an ill-chosen word as schools are all too commonly conducted. Class periods are given over to re-citing knowledge which has been carried over bodily in memory from the original citation. Perhaps on rare occasions such a procedure may be necessary; only when the materials justify themselves through use in a normal, functional learning procedure. We know, however, that facts are better learned, better remembered, and better used when derived from functional learning situations.

¹ Charles A. McMurry, and Frank M. McMurry (Bloomington, Ill., Public School Publishing Company, 1897).

² V. T. Thayer (Boston, D. C. Heath and Co., 1928)

³ Nelson L. Bossing, *Progressive Methods of Teaching in Secondary Schools* (Boston, Houghton Mifflin Co., 1935), p. 405.

Defects of the traditional recitation procedure. As has been indicated the typical traditional recitation, with exceptions so rare as to be almost non-existent, can be condemned utterly. Just as the traditional assignment "take the next ten pages" indicates a teacher naïvely ignorant of the nature of teaching and of learning, or a very lazy teacher, so also does the continued use of traditional recitation procedures. What then are the evils of this process?

1. It is based upon an unacceptable psychology of learning. It is clear now that the atomistic-mechanistic concept of learning, adding fact upon fact upon fact (or skill, or concept) does not add up to useful learning outcomes.

2. The outcomes, fragmentary isolated facts, learning in non-functional situations, are not usable in real life. Some pupils do learn under this situation and carry over to life uses, but the mediocre and dull do not. It is uneconomical learning at best.

3. The functional learning outcomes, understandings, attitudes, appreciations, skills, and special abilities, are for most pupils actually precluded by the recitation procedure. The initiative, judgment, creativity, personal development of the individual are stifled for the most part. The premium is upon rote memory and not upon developing power to cope with meaningful problems.

4. It is teacher-dominated. A number of scientific studies now available show the value of pupil participation.

5. The teacher is at best a hearer of lessons; at worst, a policeman or dispenser of punishment. To do better than this requires ingenuity, much hard work, and thorough insight into the processes of learning.

6. A very bad impression is made on pupils. An attitude of antagonism, distrust, and suspicion is engendered. This is the direct opposite of the desired attitude and ability to do coöperative work.

7. The individualistic, competitive recitation is antagonistic to the democratic, coöperative philosophy of life and of education. The recitation situation is not like life.

8. Nervous tension is created with the resultant bad mental hygiene.

9. There is often neglect of, or arbitrary disregard for, individual differences.

10. Time is wasted in large quantities.

It is recognized that many of these evils are alleviated and even avoided by alert, sympathetic teachers traditional though they may be. This, however, does not alter the fact that the evils are inherent and, with most teachers, actively present.

Demands for improvement appeared long ago. The weaknesses of the recitation system were recognized almost before that system had crystallized. Early criticisms have been mentioned elsewhere in this volume and presented in detail in other sources; they need not be repeated here. Suffice it to say that by 1915 the best writers on teaching method were

including definite and important suggestions for improvement. Demands were made that the recitation period become a "thinking" or even a working period. Fact questions were to give way to thought questions. It was suggested that many references be used and pupils be given opportunity to interpret, compare, and draw their own conclusions. It was pointed out that rapid fire questioning must give way to a procedure which allowed time to think. Discussion, argument, and interchange of opinion were to be provided for. Some "radicals" even went so far as to suggest that pupils might define and plan attack on new problems during the recitation period. Still others suggested that the pupils themselves find and bring in some of the supplementary references. Application exercises were mentioned.

These writers were driving toward the modern conception of a working period but were still dominated by the textbook or printed material conception of study and learning. They did see the importance, however, of providing for reflective thought, cooperation, judgment, and even for creative expression. They realized also very keenly the necessity of developing favorable attitudes among the pupils toward the classroom and toward education.

In the hands of good teachers, the activities of a modern daily recitation period are widely different from those of the traditional school. It is no longer a quiz period, a period of marking time between study activities, but a period in which thought is carried forward and new work taken up. There is active and wide pupil participation. Latterly the term laboratory period has been borrowed from the science and practical-arts courses and denotes a varied working period. Even more recently the workshop name and procedure have been allied with the recitation. As has been said in previous chapters, if we carry the improvement of traditional techniques far enough we are led naturally to the modern methodology.

Specific improvements appear. *The discussion or conversational method.* Just before the turn of the century the Herbartians introduced the *developmental method* into this country. During the recitation period the teacher developed the topic or subject, or guided the solution of simple problems by means of questions in informal conversation. The pupil contributed from his past experience in answer to questions. Guided by the questions pupils could rather accurately develop tales or accounts which they would later read in a book. Problems of considerable length could be solved by following the lead of the questions in a search for related past experience. That this is the original meaning is quite clear from the original German sources. Throughout the German literature on pedagogy appear references to a procedure designated as *darstellend entwickelnder unterricht*—an unwinding, unraveling, spinning out of a presentation. The available lesson plans or accounts of lessons taught which are found in German sources are of conversational,

discussional lessons. In this country the term came to be used very carelessly, being applied to lessons in which pupils made formal reports, and even to lessons in which the teacher "developed" the topic by lecturing. Because of this confusion, Parker in 1915 suggested that the term *conversational* method be used.⁴ The term is a good one and is self-explanatory. The formal question and answer gave way to connected conversation in the development of some topic or theme. Pupil participation is extended. Desirable learning outcomes are possible, when pupils argue, compare, judge data, search sources, draw conclusions.

The socialized recitation. The term *socialized recitation* had great vogue about 1920 when a considerable literature appeared. In addition to informal conversations, many more forms of pupil activity were admitted to the recitation period. Each child participated as he was able, or was given the opportunity to do so. A group of pupils engaged in varied activities together in pursuit of a common assignment approximates a true social situation as far as the formal school can achieve a social situation; hence, the term, *socialized recitation*.

There has been some useless wrangling over definitions. Some enthusiasts have insisted that the only type entitled to the designation *socialized* is that in which the teacher turns the period over to the class which appoints a chairman and conducts the lesson independently. This formal procedure is still widely used. It has values but may become subordinated to its own machinery, as often happens. Considerable explanation of the technique will be found in books on method and in the periodical literature, but not of late. Obviously, elimination of the teacher is not fundamental in securing a social situation! Would one conclude that the teacher is not eligible to associate with her students? The teacher does not abdicate her position of leadership and guidance. She may play an important part and still have a *socialized recitation*. Minimizing teacher dominance is desirable and is probably one of the outcomes of the newer recitation developments. It is not correct, however, to limit the term to recitations of this type. Many other procedures are *socialized recitations*. The essential thing is that the class be stimulated to free discussion, to give-and-take argument, to searching for data, to evaluating and discriminating, to division of labor, to coöperative group activity. Teacher guidance, as in all types of procedure, is necessary.

A *socialized procedure* may come at the very outset when a new topic is being taken up. The class can be stimulated to discuss ways and means of attacking the problem, even reasons for attacking it at all. Many pupils will have experiences to contribute.

The contribution recitation, or discussion based on assigned reports. The term has practically died out, but the procedure is still widely used.

⁴ Samuel C. Parker, *Methods of Teaching in High Schools* (Boston, Ginn & Co., 1915), Chap. 18.

The recitation, or class discussion, is based on a report or series of reports (contributions) made by individuals or small committees. Training in the discovery, organization, and evaluation of data is secured together with practice in drawing and verifying inferences. In reporting, the pupil must organize his material to be of interest to his audience. There is training in oral expression and self-confidence. Questions may be asked during the reports, and afterwards there should be free give-and-take discussion. There is stimulation to interest and to thinking; there is training in meeting argument.

Values of the socialized procedures. We may apply the term socialized to all these improvements. They are difficult for beginners; for poorly trained or lazy teachers; for earnest, sincere teachers who possess no flair for conversation or for the guidance of discussion or for stimulation of the mental reactions of other people. In the hands of skilled traditional teachers they are worthy teaching procedures. With them it is possible to avoid many of the real evils of traditional recitation and to achieve some of the desirable learning products. The general values seem to be as follows.

1. A valid learning process, interactive experiencing, is at least approached.

2. The learning outcomes desirable in a democracy are possible in some degree. The best type of training is being given when pupils are stimulated to participate, to advance opinions, are held for evidence, stimulated to organize and to defend beliefs. Reflective thought is stimulated; initiative and creative effort are encouraged. The pupils achieve social responsibility and social coöperation.

3. A premium is placed on pupil participation. The lesson is centered in learning activity and not in teacher or subject matter. In many places where new methods are introduced pupils are openly suspicious! It is a sad commentary on teaching that it takes some little time for children, and often college students as well, to understand that they may express opinions, argue and debate, differ with text or teacher, ask for further information. A graduate student told the writer recently that until he entered the course in principles of teaching in the fifth year, he had not opened his mouth during four years of preparatory school and four years of college. Even if considerably exaggerated this commentary is significant.

4. Pupils receive valuable training in oral expression, both in organized reports and in give-and-take argument.

5. The pupils get valuable training in leadership, in the conduct of meetings, and in the control of discussion more than when the formal types are used. Incidentally, the teacher profits in like manner.

6. The pupils develop wholesome attitudes toward the classroom, the school, and toward education in general.

Dangers in the socialized procedures. The new developments are not without their limitations and pitfalls. Chief among them are:

1. The form may be substituted for essence. In some cases the appointment of chairmen, the formal rigmarole of getting recognized by the chair, of adhering to rules of order completely prevents the essential thing, socialized activity. The novelty of procedures often attracts more attention than the process which the new procedures are to facilitate. Another substitution of form for essence occurs when pointless discussion is permitted under the misapprehension that it is connected discourse. The aim is not just to have discussion and pupil argument but to have that discussion and argument headed for an objective.

2. Time may be wasted on digressions, wandering, pointless argument, or on pure quibbling. This is inherent in all social discourse. Anyone familiar with the popular "study groups" sponsored by women's clubs, by men's organizations, and even by many educational institutions knows just how witless free discussion can become. City councils, state legislatures, national committees are often prime illustrations of stupidly incoherent, muddled procedure; although with some of these groups, such a process is deliberate and carefully calculated. A few teachers openly permit unorganized, wandering discussion under the delusion that discussion of any type is superior to formal recitations. Some of them state that the pupil thus gets training in self-expression, thinking, and discussion. He is in fact getting first-class practice in not sticking to the point, in not organizing material, in not considering data systematically, and in developing irresponsibility in stating opinions.

3. Discussion techniques may be utilized with too simple material. It is a waste of time to develop concepts which can be grasped through simple exposition, oral or written.

4. The teacher may abdicate her position of leadership. This is not implied in any modern procedure.

5. The discussion may be monopolized by a few aggressive, or bright, or superficial show-off pupils. This is not peculiar to improved recitation procedures nor even to fully modern methods. It happens in the most formal school. Teachers should develop discussional techniques for holding these people for facts, for calling in other quieter pupils to agree or disagree, for securing contributions from all.

6. Continuity may be lost. This is always a danger in discussion, conversation, committee work, in real life as well as in school. As stated above, pointless digressions must be controlled; however, there will always be digressions which represent legitimate side excursions. Related questions, data, or circumstances need to be discussed at the time. If normal extensions are not permitted, then we are back on a formal, controlled recitation procedure. Hence there must be provision for periodic summary and reorientation. Even if continuity is not lost through the complexity of the discussion, periodic recapitulations are

necessary, since the pace of truly socialized procedure cannot be planned. It becomes necessary from time to time to stop to restate the problem, to survey what has been accomplished, and then to re-plan subsequent activity.

Values achieved and dangers avoided through careful preparation and active guidance. No one can tell another person just how to conduct a free discussion or any other socialized procedure. The specific devices will be wrought out of experience, enlightened by such psychological principles as we can give. Native ability plays a very large part. As has been said before, a good teacher must possess some vivacity and some flair for manipulating mental processes. A skilful conversationalist or competent chairman alone can guide conversation in desired directions. The extremes of domination and of pure anarchy must be avoided. This takes careful systematic planning in addition to native ability. A few principles may be of assistance.

1. *The teacher is directly responsible for the establishment of favorable attitudes.* This is true in all teaching but more so in any recitation procedure no matter how socialized since that procedure is not a natural one. Pupils feel no urge toward it. The general principles and suggestions which have been made throughout this volume will not be repeated here; a few items will be recalled:

First, seek smooth connections between the material and the natural interests of the students. This provides as functional and meaningful a situation as can be achieved under the forced limitations of the recitation period. This will invite purposeful activity from most pupils, which is probably the best known way of developing favorable attitudes.

Second, invite participation upon all possible occasions.

Third, use any contributions that are at all practicable and commend those trying to contribute or participate.

Fourth, arrange opportunities to contribute and participate in terms of individual differences, thus ensuring opportunity for success.

Fifth, give sympathetic assistance to those who are having difficulty.

Sixth, maintain yourself an attitude of sincere interest and alert participation.

2. *The teacher must discover the readiness of the group for socialized procedures.* This includes knowledge of past experience with such methods, summary of the informational background, and determination of level of maturity. Diagnostic and pre-test techniques have been listed elsewhere and will not be repeated here.

3. *The teacher must make careful advance preparation.* Some think that since it is to be free discussion no preparation is necessary. No other belief could be further from the truth. An unplanned and uncontrolled socialized period is fully as detrimental to learning as the formal question-and-answer recitation. What the teacher needs is not a formal plan but a general outline of the desired continuity; she should have illustrations ready. The skilful teacher learns to anticipate requests for explana-

tion, digressions, or other difficulties. She controls the discussion by calling for periodic summaries and reorientation.

4. *The teacher must ensure participation by all, and eventually secure pupil responsibility for participation.* At first she will distribute questions, tasks, reports, committee memberships, any and all opportunities to participate. This distribution will be so done as to invite volunteering. She should encourage conversation and fairly vigorous argument. The modern teacher not only accepts but stimulates activities and discussions which would not take place in the formal atmosphere of the older school. Incipient disciplinary situations are bound to arise but they are part of the problem of developing pupil responsibility and self-discipline. This does not mean that the teacher permits breaches of good manners or of necessary order but that she controls them in such manner as to develop the desired self-discipline. In stimulating participation she will need to meet the matter of monopoly by show-offs and by •eager but yet unsocialized students.

5. *The teacher should seek pupil coöperation in planning and conducting the socialized procedures.* This is part of the two preceding points but is important enough for separate emphasis. If invited to participate and commended for it, students soon assume initiative and responsibility.

A note in defence of the teacher. The preceding discussion of the recitation has contained some harsh criticisms of teachers who habitually use the typical, unsound, traditional recitation procedures. These criticisms are correct. They should not be minimized or disregarded; however, a recognition of a certain practical situation with which teachers must contend will explain their difficulties in part. More important, it will direct the attack to a quarter not mentioned previously. In many high schools the teacher must deal with two hundred or more pupils per day. In some schools she will have these pupils distributed over two, three, and sometimes four subjects. Often no free periods are provided for either relaxation or a glance at the coming lessons. It is difficult to blame teachers who select a good textbook, divide it into as many page assignments as there are school days, and then machine-gun the pupils with fact questions during the recitation period. At least they "covered the text" though that, if not further explained, is a prime pedagogical sin. Even this sweat-shop situation cannot be used to condone some of the recitation practices one sees on every hand. Pending the distant day when enough teachers can be employed to do the work properly, teachers should exert unceasing pressure, as vigorously as is safe, on principals and superintendents who could do much not only to relieve the conditions mentioned but to provide facilities and opportunities for the improved recitation procedures. Meanwhile, teachers will endeavor, as good ones everywhere are doing, to improve the recitation even under present conditions. The harsh criticisms are only for those teachers who

do not do what could be done under the given circumstances. In many schools the recitation procedure could be revolutionized almost overnight.

DISCUSSION QUESTIONS

1. Explain how a pupil could make a "good recitation" without any worthwhile learning having taken place.
2. Some teachers claim that the traditional recitation procedure is useful because it enables them to cover more ground than other methods. What is the fallacy of this claim?
3. Toward which educational aims does the traditional recitation period actually contribute?
4. Illustrate concretely the formation of undesirable attitudes through use of typical recitation procedures. Do not merely list the attitudes; illustrate them from your experience or observation.
5. Show how the traditional recitation prevents the development of power in oral expression.
6. Did the material in this chapter sensitize you to, or explain for you, any of the understandings (generalizations) and attitudes toward teaching held by you previous to entering this course?
7. Did any new ideas, new interpretations of old ideas, or questions arise in your mind? List them.
8. Show how some of the principles previously advocated for modern teaching apply in the improvement of the recitation.
9. Summarize in contrasting outline form the differences between the well socialized recitation period and the working period of a modern unit.
10. Examine the discussion questions on this topic in Bossing, pages 449-450; in Butler, page 168; in Frederick, Ragsdale, and Salisbury, pages 178-179. Critically evaluate them in the light of what has been said about study guides and recitation questions in this and in the preceding two chapters.

EXERCISES AND REPORTS

Summarize a number of selected references on the socialized recitation. Report on types, specific suggestions on technique, advantages claimed, objections, dangers, and scientific investigations, if any.

READINGS

- BOSSING, Nelson, *Progressive Methods of Teaching in Secondary Schools*. (Boston, Houghton Mifflin Company, 1935). Chapter 14 is the most extensive discussion in print and will likely be the last discussion. Modern books are limiting discussion sharply or omitting the topic. This chapter is badly organized and repetitious but contains much useful concrete suggestion.
- BUTLER, Frank A., *The Improvement of Teaching in Secondary Schools* (Chicago, University of Chicago Press, 1939). Chapter 8 is typical of the abbreviated treatment given in modern books. The exercises at the end of the chapter, page 168, are unusually skillful.
- FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (New York, D. Appleton-Century Company, Inc., 1938). Chapter 8 is again illustrative of the more recent summaries. Many points quickly made.
- MILLER, H. L., *Directing Study* (New York, Charles Scribner's Sons, 1922). Contains many valuable suggestions on modernizing the recitation, even though one of the early books.

- MORRISON, Henry C., *The Practice of Teaching in the Secondary School* (Chicago, University of Chicago Press, revised 1931). Chapter 16 probably represents the high point for improvements strictly within the traditional form of recitation.
- THAYER, V. T., *The Passing of the Recitation* (Boston, D. C. Heath and Company, 1928). An important historical volume, summarizing the shift from traditional to modern methodology.
- WYNNE, John P., *The Teacher and the Curriculum* (New York, Prentice-Hall, Inc., 1937). A simple general statement. Somewhat formal but good specific suggestions on some points.

14

Improvement in the Use of Questions

Early investigations of the teacher's use of questions somewhat shocked educational leaders. Teachers were found asking regularly one-hundred-fifty questions per class hour. In a class of twenty-two pupils, one was questioned twice in two weeks, whereas a classmate was called on eleven times in the same period. In a small class of thirteen, one pupil was questioned four times, whereas another was called upon eighteen times. Scores of illustrations are available.

These facts should not have shocked those who discovered them. The facts evidently do not shock thousands of so-called practical teachers since the practices described are in common use. And why not? As long as the aim of education is believed to be the mastery of content, the memorization of masses of unrelated, fragmentary facts, a barrage of minute fact questions is a natural and legitimate procedure. As long as the school is not concerned with causes of failure, nor with adaptation to individual differences, accidental and uneven distribution of questions will be found.

When the aim of education is conceived, not as memorization of fact, but as the development of complex controls of conduct—understandings, attitudes, appreciations, skills, and special abilities—a wholly different technique of questioning becomes imperative. A questioning technique adapted to the older primitive conception of aim will actually prevent the achievement of many sound aims. The older practices cannot develop pupil judgment, independence in study, suspension of judgment, abilities to analyze and discriminate, and many others.

Sound conception of aim: good general education necessary for improvement of questioning. Butler calls attention sharply to the error of earlier writers on questioning. They endeavored to improve questioning through improving the wording, the form, the mechanics, that is, the technique. The chief weakness lay, however, not in the technique but in the teacher's conception of the purpose or aim. If her aim is pupil mastery of facts then her rapid-fire questioning technique cannot be condemned. It is well fitted to her aim. To improve questioning, the teacher's knowledge of aims must be improved. A secondary allied weakness is lack of knowledge of the mental processes of learning. A third important weakness is often found in the teacher's own lack of general education

and intellectual interest. Teachers cannot ask questions about values or appreciations if they have never achieved values or appreciations of their own. Individuals who have not read critically and endeavored to interpret a number of conflicting statements cannot ask interpretive questions. The writer recently observed a high-school teacher stumble through an atrociously incompetent lesson in modern literature. Later in conversation the teacher quite casually said that she had not had time for several years to read any of the books "on the list." No wonder her questions designed to guide students in evaluation, in discrimination, and toward appreciations were peculiar!

Butler's blunt indictment is worth repeating:¹

When we say that a teacher's questions are poor, we actually mean that her knowledge and thinking are poor. Why not be honest and call a spade a spade? We endeavor to do everything by techniques; on the contrary the source responsible for the weakness should be strengthened and invigorated.

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It is essential that beginning teachers and experienced teachers realize the importance of developing their own minds before their teaching can be improved. The person who has ideas, thoughts, different viewpoints, notions of genuine values, and real purposes and aims in mind will ask questions in keeping with profitable achievement without seeking a mechanical clue in the specific words or forms in framing questions. The purpose of the question, rather than its form or wording, is the all-important factor. A thought question is a thought question regardless of the vocabulary used. Purposes pull in words needed to give the purpose proper expression.

This is excellent. Nevertheless, considerable assistance can be given to teachers about wording and form after purposes have been clarified. To this we will turn later.

Good native ability to think and teaching experience necessary for improvement of questioning. As was said of the socialized techniques in the chapter on the recitation no one can tell another person how to concoct good questions. Advice almost reduces itself to the equivalent of telling students and teachers to lift themselves by their boot straps! Expert, or even passable, questioning, leading discussions by means of questions, is greatly affected by native ability and by experience. The actual technique of questioning is one of the most difficult and, oddly enough, one of the most neglected problems in teaching. It remains a constant problem for many good teachers. Good questioning requires the ability, native or acquired, to think quickly and easily while facing a class, to shift and change as thought progresses, and to phrase questions in clear and unambiguous terms.

The teacher must also be able to sense quickly the causes of misinterpretation of her questions. For every curious answer, "schoolboy howler," or simple misinterpretation, there is good reason in the mind of the

¹ Frank A. Butler, *The Improvement of Teaching in Secondary Schools* (Chicago, University of Chicago Press, 1939), pp. 195, 197.

pupil. The ability to direct thought through questioning is one of the most valid proofs of teaching skill known. Through it all, the teacher is to move with the thought of the group, guiding but not dominating.

These requirements puncture in some measure the pleasant fiction that the slow but efficient thinker can, in the end, do anything that the quick person can. A slow thinker, no matter how efficient and conscientious, will always have difficulty with a class of normal pupils. The quiet, retiring, scholarly young person who often goes in for teaching so often turns out to be a misfit because she lacks these very requirements.

Planning is clearly demanded. Few persons are gifted enough to be able without some previous preparation to follow the thought of a group, to shift and turn quickly enough, to guide the lesson coherently without domineering. A preview which is not the formulation of a rigid sequence will aid. In fact, the writer, after some years of minimizing lesson planning, has returned to it in flexible form. Practice teachers for several years now have been unanimous in declaring that being forced to write out some questions in advance with probable answers, and to plan continuity thus was one of the most helpful devices given them. One brilliant student who was about to fail in his practice teaching rejected this suggestion for some time. He was not required to accept it. Finally, in desperation he tried it. Within ten days he, his supervising teacher, and several members of his high-school class were astonished at the change.

It is not, however, quite so bad as lifting oneself by the boot straps. Native knack and experience are vital, but one can profit from advice and training. Plato, probably reflecting his training under the great questioner, Socrates, wrote in the *Republic*, "Then you will enact that they (the rulers) shall have such an education as will enable them to attain the greatest skill, in asking and answering questions."

The purposes to be served by questions. The aims of purposes to be served are obviously fundamental. The number would be large if all sub-purposes were included. The most important are:

1. *To stimulate reflective thought.* This is, of course, a blanket term. The various elements include analysis, comparison, definition, judgment, interpretation, etc.

2. *To develop understanding.* Questions may direct attention to important elements basic to the understanding. The pupil's own experience will be searched, analyzed, and organized through questioning.

3. *To bring about the emergence of new concepts.* This may call for comparisons with simple known things, pointing out of analogies.

4. *To apply information.* Good problem questions and many "exercises" in texts and syllabi illustrate this. Many exercises are unfortunately memory questions or call for the following of recipes.

5. *To develop appreciations and attitudes.* Analytic questioning, so widely used here, is definitely detrimental. The chief care here is to provide opportunities for appreciation to emerge.

6. *To develop the power and habit of evaluation.*

7. *To change beliefs or attitudes.* This is a delicate matter. Beliefs acquired under emotional conditions or in emotional settings cannot be changed ordinarily by fact or logic. Hence the questions must make indirect approach through items not emotionally colored. In fact, education should first attempt to train persons in knowledge of mental and emotional processes before attempting to change beliefs.

8. *To focus attention on cause-and-effect relationship.* This, of course, overlaps with two or three others. Socratic, conversational questioning of the "if this, then that" type is valuable.

9. *To determine the informational background, interests, and maturity of individuals or class groups.* General techniques for pre-testing listed in the chapter on the assignment supply guidance here. Here, if anywhere, direct fact questions might play a legitimate part along with other forms.

10. *To create interest, arouse purpose, develop mind-set*

11. *To test directly for designated achievements*

Illustration of contrasting purposes revealed by questions. The story told in Chapter 2 of the boy whose composition about the Washington monument was rejected illustrates the different purposes which a question may serve. The teacher aimed the question at a series of facts. The boy assumed the question was aimed at understandings and attitudes and answered accordingly.

Butler gives a simple and explicit illustration.² Two sets of questions about Lincoln's Gettysburg Address are contrasted to show how aims vary and how the variation determines the quality of the questions.

In one classroom:

1. Where did he give it?
2. When did he give it?
3. What was the occasion?
4. How many years are there in a score?
5. How many years are there in four score and seven?
6. Who is ready to recite the Address?

In another classroom:

1. What was the basic principle upon which Lincoln developed the Address? Did Lincoln think of the principle first or did others before Lincoln believe in it?
2. Did you notice any time sequence?
3. What message did Lincoln leave for his fellow-citizens?
4. What feelings would you have had if you were at the dedication and heard Lincoln?
5. Suppose you had never heard Lincoln, do you think you could tell something about his character from just reading the Address?

²*Ibid.*, p. 198.

The second set is by no means perfect but the difference between the two sets is too striking to need extended comment. The difference is not in the words, both vocabularies being simple; it is in the purposes served.

The following interpretive questions listed by a practice teacher are in pleasing contrast to the typical "who, what, when, how many, and what happened next" questions.

*Questions To Be Used as a Basis for Discussion of Carl Sandburg's
Abraham Lincoln*

1. Through chapter 18, page 41
 - a. Why was Nancy Hanks called a pioneer sacrifice? What are the implications?
 - b. Do you agree with Dennis Hanks' statement, "Exceptin' for an interest in politics and religion, they lived just like Injuns"? Why?
 - c. Why does Sandburg keep repeating "the wilderness is careless"?
 - d. Where and how would you say that Lincoln got his real education?
 - e. Is the style of writing suitable to the subject?
2. Through chapter 29, page 82
 - a. In the various jobs that Lincoln had, what could he have learned which would later help him?
 - b. Jefferson said, "Sometimes it is said that man cannot be trusted with the government of himself. Can he then be trusted with the government of others?" Apply this to Lincoln. Apply it to Andrew Jackson.
 - c. Does Sandburg give the historical background of these times? Give instances.
 - d. How did Lincoln's idea of God affect his actions?
 - e. What did Lincoln's first election speech show of his character?
 - f. Find instances of symbolism in these chapters.
 - g. Could you tell from reading this book that Sandburg is a poet? How?
 - h. What is the relation of this book to the school of interpretive biography?

Knowledge of purposes is then the first step in preparing good questions. Attempting to aim the wording directly at the purpose to be served will help to prevent pointless questioning.

General principles basic to good questioning. With the place or purpose clear as one important guidepost, and before turning to the details of wording and form, we may set up a list of general principles.³

1. *The general sequence of questions should be organized around a thread or core.* This refers to the general continuity of the lesson and not to the minutiae which are arranged as the lesson progresses. The evils of rambling discussion have already been mentioned in the chapter on the recitation. Maintaining reasonable continuity is extremely difficult for beginning teachers. Practice teachers who are unable to make progress in developing this ability should doubtless be discouraged from continuing. The development of the particular objectives of the unit or

³ The writer's original list was improved by some items and wordings adapted from other authors. Grateful acknowledgment is made to Bossing, Frederick, Ragsdale and Salisbury, and particularly to Butler.

lesson series, understanding, appreciation, attitude, etc., furnishes the thread.

2. *The answers to be accepted should be reasonably full, rounded replies.* Short, choppy questions invite short, choppy answers. Probably as an outcome of the rapid-fire fact question, there has grown up in schools of the United States a thoroughly reprehensible practice, namely the acceptance from pupils of fragmentary one-point answers. Our typical procedure is to secure one point from the first pupil, a second point from another, and so on until several pupils have contributed enough fragments to complete a reputable answer. This is true from elementary school through college. Genuine effort is necessary to break it up, and so far little progress has been made. The modern school, because of the different setting of questions and discussion, cares for the matter properly in the main.

The writer had a most revealing experience while teaching in the University of Puerto Rico. After the usual preliminary days of explanation, defining of problems by the students, planning methods of procedure, etc., the day came when the first set of the study questions was to be analyzed in class. The first student called upon glanced at some notes, laid them down and proceeded to speak without interruption for nine minutes! There was nothing much to be said further and every one knew it. Thinking he had by accident called upon a local honor student, the writer studied his class to find a student who seemed to be average or poorer. He fell into the ancient error of assuming that the beautiful are dumb and assigned the next question accordingly. The young lady looked at her notes, rose, and spoke for six minutes! Again there were no corrections or additions warranted. It should not be assumed that this formal procedure was used exclusively. Many of the questions called not for summaries but for comparison of views, whereupon the discussion was fast and furious—so fast, in fact, that the Spanish-speaking students asked permission to carry on in Spanish because thinking in English slowed them down! The argument was then summarized in English for the instructor, who guided the continuing analysis. The point to be emphasized was that these Puerto Rican students had been thoroughly trained to answer in adequate, coherent summaries. Some of their professors are from the United States but many have foreign backgrounds. In this one item at least these students are superior to ours.

3. *Accept any answer or part thereof which can be used.* Failing the situation indicated as desirable in the preceding point, it is well to encourage students by attempting to use with proper comment any contribution. This begets more and better volunteering. Even an item which is not too close to the point should not be just ignored. A comment or question may aid the student in seeing how he missed the objective. Rarely should a teacher flatly reject an answer, possibly never reject without explanation. "That's part of it, let's see if you (or any one else)

can elaborate it." "That's on the point but is a minor point which supports another major idea—what might the latter be?" "Hold that a moment; we will use it later." A teacher who says that an answer is "dead wrong" or otherwise ridicules an honest effort is preventing the very thing she is there to do—encourage learning activity.

4. *The questions should be within the pupil's experience and knowledge.* It is difficult for students fresh from high-grade liberal arts colleges to realize that what is everyday knowledge to them is utterly and completely unknown to high-school students. The differences in experience and knowledge between high-school students of the same age but of different socio-economic backgrounds is enormous. Differences in maturity and special interests also affect this matter vitally. Some specific suggestions will be made in later pages when discussing the vocabulary of questioning. For the moment, the general principle is important.

The writer observed a high-school teacher present to a class an exhibit of extensive statistical material. He repeated several times that "*no one except a trained expert* in statistics could understand these statistics and their implications." Without pausing for breath he then assigned the tables to the class for overnight study, full explanations to be brought to class next morning! No one else saw the joke, least of all the teacher. The class naturally did not see the joke since such things are no joke to them!

5. *Allow time to think of an answer and to put it into words.* It is difficult for an eager, quick-thinking teacher to remain silent while a slow-thinking, or even a quick, student figures out an answer. The pressure on the teacher is increased because the answer is already in her mind, full-formed and "perfect." It is in the forefront of her consciousness and she completely forgets that a pupil may have to recall data, try to relate them to the question, think of words, perhaps illustrations. The teacher must simply school herself to stand quietly while thinking takes place.

To insist on quick answers gives excellent training in superficial, inaccurate thinking. It encourages the practice, too common in adult life, of stating ignorant and half-formed opinions as if they were important contributions to conversation.

Time should not be wasted, however, attempting to extract from a pupil an answer which he does not know, but which the rest of the class does. Many teachers think it an index of pedagogical expertness to pursue a student with a volley of questions in an effort to secure a desired response. They say, "It makes him think; he must get it himself." Any one who has seen a blushing, stammering student subjected to this knows that the opposite is true. The procedure clearly embarrasses and muddles the poor student so that he cannot think. If the rest of the class knows, and the question is simple, another pupil should supply the information immediately and let the thinking move forward. When such situations are complex and involve guidance in analysis needed by most

of the class, then a series of questions slowly and sympathetically given, with class participation, is valuable.

6. *The attitude during questioning should be natural, friendly, and conversational.* This is merely in keeping with the general psychology of both old and new schools which are trying to apply modern psychology. The effect on attitudes and upon learning has been discussed earlier in several places.

7. *Pupils should be encouraged to ask questions.* Good teachers encourage and welcome questions from the class. To secure interested, competent response of this type is an index of high teaching skill. The best type of pupil participation is being secured. Careful distinction should be made, of course, between the interested, alert pupil who asks intelligent, legitimate questions, and the bluffer who wastes time with many foolish and irrelevant ones. Good teachers attempt to use any part of a question which will contribute to class thought. Even a pointless question should not be summarily dismissed if further conversation may bring the student to see wherein his question is useless. Recurring pointless questions from the same student call for individual assistance outside class time.

Unfortunately, some teachers dislike pupils who ask questions. They strive to discourage such activity. Teachers who consistently discourage the alert, questioning student are either very lazy or completely misunderstand their functions as teachers. Teachers who will not or cannot encourage, guide, and enter into the learning processes of the pupils should be removed if possible.

8. *Develop an attitude of pupil responsibility for answering questions from the class as well as those from the teacher.* Again this is but good modern psychology. Students are not to look to the teacher as final and unanswerable arbiter. They are to take responsibility, come to conclusions, and support them.

9. *Do not hesitate to say, "I do not know" to a pupil's question.* Many traditional teachers were as bad bluffers as some of their students! No one is supposed to know everything. Learning is continuous for all of us. Teachers who feel they "lose face" by not answering lose much more, if they only knew, when they pretend to answer everything. Questions for which the teacher does not have an immediate answer can be made the subject of discussion, of minor assignments to individuals or to small committees. Sometimes, the teacher alone will be able to get the answer, and she should volunteer to bring it in when available.

The wording and form of questions. With purpose-to-be-served and other major principles understood, we may turn to some of the minutiae. The following suggestions will aid in the actual construction of given questions.

1. *The objective of the question should be clear and definite.* If the objective is not clear, there is no fair criterion for judging the answer.

The chief errors here are the "discuss," "what about," "tell about," "what can you say" questions. These are vague and general and unfair to the student. They indicate lazy, inexact thinking or no preparation on the part of the teacher.

a. *Avoid "discuss" questions.* This type abounds in high school and college: "Discuss the reign of Nero," "Discuss the results of the Westward Movement," "Discuss the Missouri Compromise," "Discuss the novel as a literary form." The following are culled from recent examinations, "Discuss a speech on ceremony," "Discuss eavesdropping as a device in *Much Ado About Nothing* and in *Twelfth Night*," "Discuss the arithmetic mean, the probable error, and the mean error," "Discuss the thermodynamic principles involved in the determination of the Heat of Combustion of a substance with the Bomb Calorimeter," "Discuss the Federal Reserve Act," and "Discuss:

*Let music sound while he doth make his choice;
Then if he lose, he makes a swan-like end,
Fading in music."*

These questions are absurd. They indicate no beginning, no end, and no organization for the answer. Some could be "discussed" for six months. Some have been "discussed" for years. There is no guidance or stimulation of any sort. Such questions are responsible for much harsh unfairness in marking students.

For instance a student might answer the question, "Discuss Roosevelt's silver policy" with one sentence: "The policy was one of expediency, unjustified, and detrimental to our economy." He has fulfilled the conditions of the question. "But," says the instructor, "I meant that he was to outline the circumstances leading to the emergence of the policy, the events following its announcement, results to date, and the probable future developments. I wanted a detailed, organized discussion." The student cannot be a mind reader. The question neither demands nor implies anything of the type of answer concealed in the instructor's mind. It suggests no such beginning, sequence, or terminus. The student cannot with any honesty be held for such an answer. As the question stands any "discussion" is satisfactory: lengthy, brief, organized, or unorganized. An ancient school-room joke illustrates the point. A student was confronted with the question, "Discuss the reign of Caligula," and realized that he knew nothing whatever about this reign. Purely as a shot in the dark, or perhaps as a satire on his own state of mind he wrote, "The less said about the reign of Caligula the better." This is said to have been accepted.

High-school teachers and college professors addicted to use of "discuss" questions follow the argument further. They claim that such questions teach students to organize. Not at all; they may equally teach them to make rambling incoherent presentations. If the instructor refuses to ac-

cept a poor organization, he is marking by a criterion not implied in the question and not within the knowledge of the student. As indicated above, the crux lies just here. Most instructors do have in mind a type of organization and treatment they wish reproduced when they ask "discuss" questions, but the type accepted varies from instructor to instructor. Students can be taught to organize by far better devices than by vague, indefinite questions. In fact there is much material available in the literature on study skills showing how to do this. Further, students should have been taught to organize long before test or summary questions appear.

Again the instructor may desire a critical comparison. He may reject not only a rambling discussion but the expository organization acceptable to another professor. Again the student cannot be clairvoyant. If the instructor means by "discuss" a critical comparison thrown into certain form, he should ask for it.

The question stated above may be thrown into acceptable form, "Present in organized form, the origin, development, present status, and probable future of Roosevelt's silver policy." This by no means "gives the answer away" but it implies a definite type of answer which can be marked under a criterion clear to any honest student.

Some teachers instruct and drill their students in the desired type of answer to "discuss" questions. Under specific, limited conditions of this sort the question is fair, but this procedure seems a long way around a simple point. Ordinarily, this type of question is a shot in the dark, a "sloppy" device, a lazy teacher's refuge.

Stimulated evidently by the sharp criticisms made of such questions by psychologists, there have recently appeared some paragraphs in defense of "discuss" questions. Most of them are more indicative of hurt surprise that a time-honored technique should be assailed than they are of any critical analysis of the issue. Are not "discuss" questions used by the best professors, and in respectable schools, forsooth! Some of the statements are quite transparent defense mechanisms. Nothing has yet appeared which invalidates the criticisms.

b. Avoid "what about," "what can you say about," "talk about," questions. These are but variations of the "discuss" procedure. The same analysis applies. Such questions have no clear objective; they give the student no guidance whatever; the answers cannot be marked with fairness. They indicate complete failure on the part of the teacher to give attention to analysis of her objectives and to the wording of her questions.

c. Avoid leading questions. The opposite of the discuss question is the question which gives too much guidance, the type condemned in courtrooms as "leading" questions. This error is so obvious and simple that it should not need mention. Teachers everywhere, however, use such questions. "Pericles was banished from Athens, was he not?" "Lincoln

was right in freeing the slaves, was he not?" Pupils are constantly crowded into a desired answer by questions which contain within them such phrases as "don't you think so?" "it is true, isn't it?" "you would have to agree, wouldn't you?" Leading questions sometimes result from poor ability to think and to phrase questions but sometimes from the teacher's insistence that a pre-determined answer be forced upon the class. In dealing with the social studies such questions are very 'serious blunders.

d. Avoid catch questions. Most of us have been caught by such questions as the following:

An athlete is to run around a square field. It takes him 40 seconds to run the first side which is 140 yards. It takes him 50 seconds to run the second side. How long is the second side?

A train leaves Chicago for New York traveling 50 miles an hour. At the same time a train leaves New York for Chicago going 65 miles an hour. Which will be farthest from New York when they meet?

Following normal and sensible mathematical attitudes and precedents, many individuals will try to work such problems. The catch is then explained. In the first the second side is also 140 yards: the problem says the field is square. In the second, both trains will be the *same* distance from New York when they *meet*.

Intrigued by the trick one tends to say, "Such problems make one think." The direct opposite is true. Such questions confuse thinking by making one "think" in ways which are not valuable in real problems. The uncritical teacher confuses "hunting for the catch" with true "analysis of a problem." Real thinking has to do with ferreting out true and logical connections, not with discovering odd and bizarre tricks which rarely appear in real problems. The mental attitude engendered by catch questions is inimical to the desired attitude in analytic thinking. Looking for the catch prevents one's seeing the logical connections. These questions are good parlor entertainment and are prominent in many intellectually perverted radio programs.

2. *The question should be directed at attainable objectives.* Certain questions, clear enough as regards language, are confusing because they call for more or less final answers when such answers are either not available, or can only be guessed at by the pupils. They are directed at the causes or solutions of certain historical events, wars, revolutions, economic upheavals, political movements, etc., or call for moral judgments to be passed upon such events. If superficial answers are accepted, the pupils are receiving training in poor thinking. Attitudes of smug and ignorant satisfaction arise when simple answers are accepted for complex problems. The real answers to some of these problems have puzzled the best thinkers we have. Such questions are clearly permissible when it is understood that the objective is to stimulate discussion, the search for and organization of data, and the suspension of judgment. Wide differ-

ence of opinion regarding final answers should be permitted and encouraged.

3. *The wording of the question should be precise and direct.*

a. *Avoid digressions and involved statements.* If questions are to direct thought they must be to the point, avoiding long involved phrases, or supposedly facetious, or even explanatory digressions. Many teachers believe they are engendering good feeling in the class when they interlard the question with humorous commentary. A college professor was heard to ask, "A group of bright young men such as we have here must in their previous variegated academic careers have met the Law of Parsimony—sometimes called Occam's razor—and why do you suppose it was called Occam's razor—and have some dim realization of its applications to thinking—and so we will have Mr. Blank apply it to the several explanations which seem derivable from the pedagogical experiment upon the efficacy of several ways of increasing the vocabulary."

b. *Avoid ambiguity.* The difficulties inherent in using language carefully have been discussed earlier. The young teacher and the hurried older teacher often use words which may be interpreted quite honestly by pupils in several different ways. A teacher developing concepts of latitude and longitude by means of street directions in a small town asked an inattentive boy how he would get from the depot to the hotel and received the reply, "I'd walk." The teacher desiring the reply, "One block south and four blocks west," became very angry, failing to realize that the boy's interpretation of her question was honest. With more mature bright students words must be chosen with real care.

c. *Avoid asking the question two or more ways in one statement.* Teachers often fall into this error in a sincere effort to aid the pupil. "What is a ballad, or can you define this type of poetry?" It is better to ask it one way and give time for recall or volunteer answers before changing the wording. It is good practice to rephrase a question in different words since different wordings strike responses in different minds; an interval, however, should elapse.

d. *Avoid calling for more than one unified reaction at a time.* This difficulty goes further than the preceding one and includes two or more items in the same question. This is sometimes called a "double" question. "Why is alcohol not a food and why is it bad for us?" "Did the belligerent submarine have a right to enter our neutral port to exchange goods, and what should we have done about it?"

A more complicated form of the double question is one that states alternatives. "Is there great rainfall or not in Western Oregon?" "Was Pizarro a Spaniard or a Portuguese?" Questions may present alternatives when controversial issues are involved and when the question is designed to initiate a continuing comparison and evaluation of data.

4. *The vocabulary should be within the comprehension of the pupil.* The case is cited of a junior-high school history text which included on

one page in the first chapter such words as *embryonic*, *vicissitudes*, and *economic stability*. The writer observed a teacher who asked a junior-high school class, "Did not the group of signers to the Declaration of Independence constitute a *felicitous galaxy* of statesmen?" Still another asked a pupil to "*embroider* on the theme." "Did the conference *culminate* in unification?" "What is the *thesis* of the book you are reading?" Such words as *mercenary*, *romanticist*, *mores*, have little meaning for young students. Many children are even confused by being asked to "Tell the *influence* of" or "*Compare* the industries of" since the words *influence* and *compare* have not ordinarily been used that way by them. One class failed to answer a question which included the word *semester* because they had never heard the word before, *term* being the usage in their school.

The question may be asked whether extension of vocabulary is not one aim of teaching. Assuredly. In all educational procedure, questioning included, the pupil's vocabulary—as well as many other achievements—is to be improved. This is done in questioning as in reading, through contextual clues and through direct study. New words which can be properly interpreted by ordinary pupils may be used freely. The criticism refers to words which have not, and cannot have, meaning for the pupil.

Mechanical features. Before listing the mechanical features it should be recalled that in this section of the volume we are discussing the improved recitation period, not the completely modern working period. Frederick, Ragsdale, and Salisbury poke considerable fun at certain of the advices commonly given about the actual mechanics of presenting and distributing questions.⁴ Their criticisms are quite correct if we abandon the typical formal recitation. Since the recitation will be common practice for some time to come, attention is still necessary to the improvement of a practice which is not itself basically sound.

1. *Present question to class before calling upon some one to answer.* This tends to secure attention from all, and all at least start thinking about an answer.

2. *Distribute questions.* Teachers tend naturally to favor those students who volunteer, who contribute, and who themselves ask questions. Some device to insure distribution of opportunity to participate is necessary. Alphabetic or other fixed orders for calling upon pupils should be avoided. These are too incompetent even for the traditional recitation. Glancing over the roll just previous to class and noting those who have not contributed recently will help. Writing those names on a card is even better. Shuffling class cards is another recommended device.

The two foregoing suggestions are those chiefly ridiculed by Frederick, Ragsdale, and Salisbury as being wholly out of line with reputable learning situations and as provocative of undesirable attitudes. This is

⁴ *Directing Learning* (New York, D. Appleton-Century Co., 1938), pp. 170-171.

correct unless, as stated, we are already operating under a system which makes forced attention necessary.

3. *Do not repeat questions.* Questions should not be repeated habitually because this makes for lack of attention. Care should be taken not to offend or embarrass the conscientious pupil who occasionally asks for repetition of a question which he does not understand. In the case of consistently inattentive students a sharp refusal to repeat is legitimate if such attitude is even legitimate.

This item, again, is one which would be ridiculous under modern teaching conditions.

4. *Do not repeat answers.* This is a seriously bad habit, one easily acquired, and one most difficult to overcome. It arises from the teacher's natural desire to emphasize, to interpret, and to extend thinking. Teachers should be rigidly on guard against this since it encourages fragmentary, incomplete, and poorly worded answers from pupils.

5. *With certain exceptions, secure answers in complete sentence form.* Complete answers in good English are ordinarily desirable. This is particularly true during important class discussions. Otherwise, bad habits in expression arise, misunderstandings occur. Answering in complete and coherent form should be a matter of course. In some types of discussion, as in real life, this type of answer would slow thinking, if not actually confuse it. Contrary to the opinions of some teachers, it is quite all right to ask "yes or no" questions. Criticism should be directed at failure to follow up the stand taken with other questions directed at reasons and argument.

Adapt to individual differences. Adaptation of all procedures to individual differences has been stressed throughout this volume as a prime characteristic of modern teaching. This is particularly true of questioning. Teachers should make earnest, reasonable effort to take into consideration students, abilities, special interests, personal characteristics, etc., in distributing questions.

The distribution of difficult thought questions has caused some debate among teachers. Some hold that these should be given to the weaker students in order to spur them to effort and to give practice to analyzing difficult situations. Success is said to bring satisfaction and confidence. Others maintain that the poor student is not able to solve difficult problems and instead of getting practice in thinking he is more likely to become confused and embarrassed. Instead of confidence he achieves the opposite and avoids participation. A waste of class time also results. It seems better to distribute difficult problems to brighter pupils. Their analysis is of value to slower pupils, who can often understand fellow students better than they can the teacher. Weaker students would then be given easier questions which they can solve with some degree of facility. Properly adjusted to levels of ability, such questions will probably afford all the opportunity for thinking these pupils can use. The

flashy, superficial pupil may be given difficult questions and held firmly to results in order that he may appreciate and experience the value of good work.

Common weaknesses in pupil answers. Observation and teacher reports indicate certain typical weaknesses in answering which can be remedied.

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| 1. Students begin to answer before thinking out the complete implication of the question. | A fragmentary answer results. Minor points may be magnified and major points neglected. |
| 2. Students seem to expect continued stimulation from the teacher. | Fragmentary, choppy, one-point answers result. |
| 3. Students believe that they have answered a question if they give any one or two of several points which could be given. | Inadequate, unorganized answers are given. |
| 4. Students take no responsibility for organization, sequence, and coherence. | Rambling, discursive answers result. Relative values are neglected. |
| 5. Students seem to be seeking to discover what the teacher wants, rather than to evolve answers based on the data and implications. | Answers are dictated by suggestibility rather than by analysis and thought. |

These points overlap but are stated separately for emphasis. It is clear that the teacher's mode of questioning and the type of answer accepted will contribute to the development of good or poor habits of answering. An analysis of pupil answers and habits of answering supplies guidance toward the improvement of questioning.

DISCUSSION QUESTIONS

1. For each of the faults listed above show briefly how the teacher may unwittingly contribute to their development; how she may help eliminate them.
2. Give examples, if you can recall them from your own school experience (or watch for them now in observing), of particularly skilful guidance of class discussion by questions either prepared in advance or developed in terms of class-hour demands. (Several reports may be made on this to illustrate different points.)
3. Do the same thing for cases of particularly poor practice.
4. How will you probably learn to construct good questions?
5. In general, how would you handle a bright student who rarely studies carefully and who is a good bluffer?
6. List a number of suggestions for stimulating students to ask questions.

EXERCISES AND REPORTS

1. Secure a lesson plan, or lesson report, or unit plan or log, containing a fairly detailed account of the question-and-answer procedure in the class period.

Accounts of traditional daily lesson plans are to be found in practically every text on general method or principles of teaching. Both traditional and modern plans appear in the periodical literature and in books on unit teaching. Instructors should have built up a large personal collection of plans and unit outlines.

Read the general questioning sequence carefully and analyze critically in the light of the principles and suggestions summarized in this chapter. Prepare an organized, detailed critique.

2. Select a typical segment of material used as the basis of a traditional recitation. Organize a general sequence of major questions based upon it but designed to get as good learning as is possible under formal conditions.

3. Do the same thing for the approach or initiation of a typical experience unit.

4. Take an observed lesson in which the questioning technique was poor. Describe it and outline an improved sequence.

READINGS

1. BOSSING, Nelson, *Progressive Methods of Teaching in Secondary Schools* (Boston, Houghton Mifflin Company, 1935). Chapter 10 is discursive and repetitious but contains many good concrete suggestions.
2. BUTLER, Frank A., *The Improvement of Teaching in Secondary Schools*. (Chicago, University of Chicago Press, 1939). Chapter 10 is one of the best available discussions of the subject.
3. DEGARMO, Charles, *Interest and Education* (New York, The Macmillan Company, 1908), Chap. 14. Despite early date of publication this is still a valuable reference. A wealth of concrete illustration.
4. HALL, J. W., *The Question as a Factor in Teaching* (Boston, Houghton Mifflin Company, 1916). Another early reference of historical interest.
5. FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (New York, D. Appleton-Century Company, 1938). Chapter 8 on the recitation contains excellent brief discussion of questioning.
6. STEVENS, Romiett, *The Question as a Measure of Efficiency in Instruction*, Contributions to Education, No. 48 (New York, Teachers College, Bureau of Publications, 1912). The original statistical study of questioning. Chiefly valuable for survey figures and illustrations.

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The Preparation of Daily Lesson Plans

1. In planning the accomplishment of any task in the world:
 - a. What is the first thing to do?
 - b. What is the general procedure after this first item has been determined?
 - c. Could teaching proceed without attention to this point?
2. List all the possible advantages of *not* planning:
 - a. A coming trip to Europe
 - b. Next year's work in college
 - c. A dinner to which ten guests have been invited
3. Which is the most complicated: planning a new evening gown; planning methods to increase sales in a small-town variety store; planning to convince the citizens of a village to vote improvement bonds; planning to bring an understanding of the causes of the American Revolution to thirty-five eighth-grade pupils? This question may be answered in general terms, or time may be taken to discuss it somewhat explicitly.
4. Have you ever failed in an argument, or in explaining something satisfactorily to some one, and later thought of just the illustration needed? What is the guidance for teaching?
5. Might there be any connection between the distinctly mediocre teaching in many high-school and college classes, and the common lack of definite lesson planning on these levels?
6. Describe in some detail a case in which you are reasonably certain your teacher failed because planning was neglected.
 - a. Do likewise for a case where the teacher succeeded because preliminary plans had been made.
 - b. Do likewise for a case in which there seemed to be no planning, but in which the lesson was still successful.

The teacher who does not make regular plans of some sort or other either has learned to organize mentally and to carry out such plans acceptably, or is a poor teacher. This challenging statement is deliberately placed to emphasize the necessity of planning. To be sure, there are, as we shall see, dangers and disadvantages in the planning of lessons. Furthermore, teachers of various levels of experience and expertness are not expected to plan in the same detail, nor in the same form. Successful teaching on any level involves, among other factors, preliminary planning. Let us examine briefly the reasons for and arguments against the planning of teaching procedure.

General arguments for planning. All other important human undertakings are planned. No one could build a road, a house, or a bridge

without plans and specifications. If these seem to deal with mechanical and fixed items, consider the construction of a sales or political campaign. The most elaborate planning by high-priced "planners" is necessary to influence (teach) the public. Propaganda, advertising, publicity of any sort, are all methods of teaching, and are valuable only to the degree that they are planned carefully in terms of the results desired, the material available, and the psychology of the "learner."

Careful planning for the future enables one individual, other things being equal, to accomplish things which his unorganized neighbor not only cannot achieve, but cannot understand. While luck figures, much more success in the world is owing to planning for the future than to waiting for opportunity to knock. One of the marks of intelligence and special ability is foresight and anticipatory planning. The stupid, the careless, the shiftless and lazy do not plan.

Teaching is a highly complicated process. Many different items must be manipulated during the class period, so that learning takes place. There is, *first*, a group of learners of various ages, chronological and mental, of varied interests, backgrounds, and amounts of energy. There are, *second*, many and different outcomes which are to be accomplished singly, but more often simultaneously. *Third*, there are a great number and variety of learning activities to be utilized effectively. *Fourth*, subject matter of varying complexity and accessibility, references, and instructional aids need to be organized psychologically. *Finally*, a number of more remote items complicate the problem: the racial and national composition of the group with accompanying attitudes or prejudices; the socio-economic status of the homes; the type of school building and room available. Furthermore, these items change from term to term, from week to week, and often from day to day. Improvised, inspirational, opportunistic teaching will inevitably bring muddle, confusion, chaos. Teaching must be planned.

Specific reasons for planning. The following advantages accruing from planning may be regarded as reasons for planning. Planning insures:

1. That the lesson has an objective
2. That the teacher knows the subject matter. (At least gross errors can be avoided through preliminary scrutiny)
3. That the teacher will utilize appropriate learning experiences
4. That the teacher has given attention to certain essential aspects of procedure:
 - a. Arousing of interest and continued motivation
 - b. Providing a sequence of events, either distributing work, or leading pupils in such distribution, or conducting a formal or a socialized recitation
 - c. Connecting with previous work and with work to come
 - d. Providing that materials will be ready when needed
5. That coherence will be assured (in so far as advance planning can assure it)
 - a. That ground will be covered (if it is that kind of school!)

- b. The lesson will stay on the topic; provision be made for possible digressions
- c. Summary and conclusion will be present

It may be said that these things could be secured without a detailed, cumbersome system of planning. This is granted. In the *first* place, the system need not be cumbersome. The experienced and competent teacher can plan units and series of lessons on a very small piece of paper. A few pivotal questions will carry her through. But she acquired this ability by carrying on explicit, detailed planning as a beginner. In the *second* place, human nature is not so constructed that ordinary individuals will attend to all these necessary items in a given lesson without the training and pressure of planning. In the *third* place, even if the spirit moves them, few persons are brilliant enough to carry through intricate, complex pieces of teaching without preliminary planning.

The beginner or the mediocre teacher must plan in some detail, gradually evolving an abbreviated "trick" system, adequate in the given case. Planning is not only essential to success, but, contrary to much teacher opinion, actually saves enormous amounts of time and energy.

Arguments against planning. Many and varied arguments have been advanced against planning, either as a training device or as a procedure for teachers in service. Some of the objections are trivial and silly; others are based on honest misunderstanding or false premises; still others are quite legitimate and must be answered.

1. *Plans take too much time and work.* Most objections to the labor of planning arise (a) from working under an unnecessarily detailed system imposed on the teacher by the administration, or (b) from laziness. The teacher's objections, quite justified in the first case, are not so in the second.

The mediocre teacher must always face the necessity of putting time and effort into planning, either on her own volition, or at the request of a principal or supervisor. If unwilling to do this, she should seek some other occupation.

The student in training must regard the large amount of detailed planning as a necessary part of apprenticeship, doing it cheerfully so that she may the sooner arrive at mastery of an abbreviated form. Time for planning should be most carefully apportioned in the schedule of students doing practice teaching.

2. *The teacher cannot foresee the direction the lesson will take.* On the contrary, good teachers in ordinary situations can foresee quite readily and with reasonable accuracy the direction and variations thereof the lesson is likely to take in general. If she could not, it would be all the more reason to have one direction for the lesson well mapped even if only in general. Good teachers, of course, acquire the ability to adapt their plans to developments during a lesson period, but beginners will need an organization to fall back on if the lesson does take an

unforeseen and confusing direction. It will be better to force through a good organization a bit arbitrarily, than to allow the class to become hopelessly muddled and lost. Confusion prevents the acquisition of the desired outcomes, permits the acquisition of undesirable learnings, kills interest, and may invite disorder. The intellectual consequences of wrecking a lesson through failure to plan are much worse than those resulting from arbitrarily forcing through a predetermined plan. It is granted, of course, and must be emphasized, that we have here a choice between evils; the desirable thing is ability to adapt the plans to the various lines the lesson may take. That ability will come only with experience and training in planning. One of the measures of a teacher's competence is her ability to know, in general, what an average group of children is likely to do when confronted with a given real problem, given material, and a given situation.

3. *Unforeseen difficulties will arise.* Again all the more reason to plan so that an orderly sequence can be picked up after the digression is terminated. As a matter of fact, careful, detailed planning, plus experience, will enable teachers to foresee most "unforeseen difficulties," which are, in truth, usually normal pupil reactions to striking, erroneous, or misunderstood material.

4. *Questions cannot be planned in advance.* This is closely related to the previous points, and is to be answered similarly. It is true that all questions cannot be planned in advance, and this is all the more reason to plan carefully those that may be predetermined. They will serve as guides or pivots. Individuals raising this objection rarely think far enough to consider the alternative, which is trusting to inspiration, "hunch," luck, or to such pedagogical gods as one has. The alternative brings out the absurdity of the objection.

5. *Specific pupil answer cannot be predicted.* In most training plans the student is asked to indicate, in addition to the general questioning technique, the expected pupil answers, at least to the important questions. It is obvious, of course, that no one can tell exactly what a given pupil will say to a given question. But there are few more efficacious teacher-training devices in existence than that of requiring the teacher to attempt prediction of pupil answers. It is the most direct check that can be devised upon her knowledge of the psychology of the learner, upon the wording and import of her questions.

The writer's experience with question-and-answer planning has been very interesting to him and is passed on in case it may be of value to others. Years ago, as a normal-school and teachers'-college instructor, he aided students-in-training in the development of somewhat detailed sequences of question and answer. Complete lessons were not so planned but illustrative samples, usually of crucial points in the lesson. The writing of these sequences was understood to be a training device and that the sequences were not to be used as written. Later he found that

this device was also of distinct service to earnest but poorly trained or mediocre teachers in sensitizing them to the pupil's point of view and in orienting them to the learning instead of to the teaching aspect of the situation. Good teachers could already construct good questions and could profit more from other aspects of planning: the introduction, for instance, of more diverse and more socialized activities. Then came the era of great antagonism to detailed planning. Daily plans were minimized in all training institutions and discarded in a few. This was an over correction for the evils of minutely detailed plans and of rigid adherence to such plans. Latterly, the writer has been working with students who are seriously overloaded with subject matter and with the subject matter point of view in teaching. Many come to their student teaching with a background of experience with formal teaching in high school and college and with no introductory courses in education. These students despite their excellent minds and earnestness have serious difficulty with practice teaching. Despite preliminary training which included observation, demonstration lessons, gradual participation, and discussion of basic principles, these students persisted in regarding teaching solely from the teacher's viewpoint. Prohibited from "dishing out" assignments, demanding study, and conducting recitations on memorized text material they were singularly at a loss. They were quite unable to devise teaching procedures based upon pupil interests, backgrounds, abilities, typical reactions. Two brilliant young men were about to withdraw because of complete failure in apprentice teaching when the writer in desperation suggested they sit down with him and plan a sequence of questions and supposed answers for the purpose of introducing a designated new assignment to the given group of pupils in the practice school. (The passing of this question-answer planning device has always been a matter of regret—if that be conservatism and treason to creativity—make the most of it!) The conference was followed by independent effort. The students reported that it took hours literally to "get the hang of it." The sample sequences produced were patiently and sympathetically analyzed by supervising teachers. The students increasingly gained understanding of typical child response, of ways of adapting words, questions, and illustrations to pupil background and maturity, of stimulating analysis and discrimination instead of rote memory. Success was not achieved overnight but the supervising teacher reported that the high-school students themselves characterized the change in the work of these two men as "miraculous." Both are now successful teachers. The writer uses this device freely with beginners, particularly those with formal backgrounds. Some students balk at first, but the majority report it as the most effective single device in the training period short of refinement in actual practice.

The beginning teacher usually knows her subject matter, and drives toward desired ends in terms of her own thinking about that subject

matter. To teach successfully, however, she must approach the objectives and the subject matter in terms of the pupil's thinking about it. The plans of beginnings and of poor teachers are full of sequences depending upon pupil answers and reactions which never could be secured. Teachers constantly err in assuming that the pupils will answer as the teacher desires, or think as she is thinking of the subject matter. She must acquire the ability to know how the pupil really will answer, as he sees the situation.

One of the commonest errors often committed by teacher-training institutions is to allow the teacher to describe in general terms what she will do, but not how she will do it. Plans often say, "I will develop a pupil aim," "I will introduce new matter," "I will lead the pupil to draw a conclusion." This is a totally different thing from stating explicitly how it will be done, and still different from actually doing it. The best training device is to require teachers to attempt prediction of actual question-and-answer procedure.

Those educationists who profess to be afraid of teacher domination advocate quite vigorously that no attempt be made to plan, or, more particularly, to organize a sequence based upon expected pupil responses. "For," say they, "no one can possibly tell what even a primary child will do with a given question or piece of material." If six-year-old children can outguess the teacher, what will the sixteen-year-olds do? The truth is that expert teachers manifest remarkable ability to predict rather accurately, in general terms, what will happen—and this in lessons quite free from teacher domination. Even if teachers missed their predictions reasonably often, it would still be better to have planned a probable sequence.

6. *The teacher cannot finish her plan.* It is usually true that beginners plan far more than they can accomplish. A few err in the opposite direction. Experience will remedy this. The defect is not inherent in planning. Continued planning checked against experience is one of the devices which aids in overcoming the difficulty. Furthermore, summaries can be planned against emergencies of time.

7. *Plans make the teacher dependent.* The teacher may be bound by the plan; her procedure may become stilted and formal. This is truly a danger, but it is not inherent in planning; rather it lies with the individual using the plan. Those who are most slavishly dependent upon plans are usually timid and dependent by nature, or are beginners. They do, in fact, override pupils' interests; they pay no attention to questions raised; they do not react to pupil difficulties because they are intent on minutely following their plans. But without plans on which to depend, they could not proceed at all. Some normal schools, by their procedure, develop this tendency rather than the opposite, which is freedom and adaptability in using the plan. Plans must be used as instruments to free the teacher, to give her confidence based on certainty as to major

procedures so that she may handle details and developments independently as the hour proceeds.

The essential elements in a lesson plan. The purpose of lesson planning is to coordinate teaching, learning, and materials so that desired outcomes are achieved. Mossman has traced the various stages through which planning has passed historically.¹ Planning has changed in nature as new knowledge has appeared about learning. Textbooks in teaching published prior to 1930 and those published after 1935 differ greatly and significantly in their discussions of lesson planning.

Planning was concerned with the daily lesson until comparatively recently. This is natural under the assign-study-recite conception of teaching. Modern assignments cover more ground than do the traditional, and planning, therefore, covers more than the daily segment. Units cover still more extended areas of material and time, necessitating still different types of planning.

Daily plans and those for comparatively short periods of several days will be a feature of teacher-training for some time to come. This is necessary because of the way schools are now organized. Hence, we may profitably consider the procedure of daily planning, always realizing that the daily lessons should be in series and not isolated, and that plans are not rigid instruments to dominate the teaching.

Many different forms of organization are used in teacher-training schools and in city systems. Some give a minimum of direction, allowing the student to present his procedure as he sees fit. Others provide prepared blanks with definite space provided for introduction, aim, pivotal questions, summary, etc., and require the student to indicate his procedure in the proper place. Many printed plan books are available commercially. Many systems provide for a two-column arrangement, subject matter on one side and method on the other. Still others insist on a somewhat formal division of the teaching period, and hence of the plan, into review, recitation, directed study, assignment, etc. It is probably better to avoid such arbitrary division and to plan the lesson in a more natural manner. The following outline developed through several years of tryout is suggested as a useful scheme. It may be modified to suit individual preferences.

Lesson Plan Outline

1. *Objectives*

Teacher's: What she hopes to accomplish during the class period or periods

Pupil's: A proposed or probable aim

2. *Subject matter*

indicated either by (a) page references in text and supplementary books

(b) an outlined summary

3. *Learning activities to be utilized*

¹ Lois C. Mossman, *Changing Conceptions Relative to the Planning of Lessons*. Contributions to Education No. 147 (New York, Teachers College, Bureau of Publications, 1924).

4. *The conduct of the recitation* (or study period, or drill, or experiment, etc.)
A written account showing in some detail how the teacher proposes to make a connection between subject matter and the life needs and interests of the pupils, to initiate the lesson and keep it moving toward the objectives. Items to include, though not necessarily in any one plan: pre-testing, arousing interest and motivating; presenting and explaining or conducting class discussion of new material; providing for varied learning experiences, reports, excursions, interviews; sumulating analysis and discrimination; providing for possible digressions and wrong answers; handling disagreements and controversies; summarizing and connecting with previous experiences, etc.
This part of the plan, in short, indicates what the teacher expects to do and say while before the class.
Samples of proposed questions and expected answers should constitute the bulk of this part of the plan. The size of the samples will differ with the experience and level of skill of the student or teacher.
5. *Summary* (if indicated in a particular lesson)
6. *Assignment*
7. *Bibliography*
For both teacher and pupil if not sufficiently indicated already in (2) above
8. *Instructional aids*
If not sufficiently indicated already in (4) above

Lesson plans are designed for specific situations. A speech or a sermon is sometimes criticized as having been taken "out of the barrel," meaning that it has been resurrected from a store of previously used speeches. The implication is that the speech or sermon was dull and uninteresting. Dullness results from a number of causes but significantly here probably from lack of connection between the speech and the needs or interest of the second group. We have all had the experience of telling a joke or good story which was enthusiastically received in one situation and not in another. Teachers often teach a very satisfactory lesson but when they try to repeat it next semester or year, it does not turn out well and may even fail. Teachers having two or more sections of the same subject have even found that a lesson procedure which was most effective with the nine o'clock section failed miserably with the eleven o'clock group, or vice versa. The guidance for teaching is clear and unmistakable. Plans for teaching must be based on the characteristics of the group to be taught, upon the necessities of the materials available. Plans should be filed and used in revising succeeding plans but rarely, if ever, used over again. Teachers who have developed teaching routines which they use over and over and over again (an all too common procedure) are, practically without any exceptions, genuinely incompetent. A few such teachers are interesting and entertaining and do secure some results with pupils. Reputable and adequate results can never be obtained, however, wherever the pupil and his learning process is subordinated to the routine.

The analysis of typical lesson plans. The present discussions are confined to the general principles involved in planning. Not only does space

prohibit the inclusion of illustrative units and plans, but detailed and specific treatment should be reserved for the special-methods course or for the supervisors of practice in any given school. However, if it is desired to give some training (and in some schools it must be given in the principles-of-teaching course), collections of sample plans are easily accessible. The exercises and references immediately following will care for this matter.

Some objection is raised to using collections of plans and units, because it is said that these exhibits are formal, crystallized, are not real plans. This is a quibble. Such exhibits are valuable and necessary for training purposes. It is true, of course, that teachers should not try to use cut-and-dried plans, developed by some one else for another situation. All teachers, particularly those in training, will have their thinking and planning stimulated through careful analysis and discussion of the plans made for others.

SOURCES OF LESSON PLANS FOR ANALYSIS

1. *The Card Catalogue*

- a. The texts in general method, in principles of teaching, in the direction of practice teaching, published prior to 1930, include, practically without exception, collections of sample plans. The plans are for formal traditional teaching but many embody the best of the traditional procedures. The collections are, some of them, extensive and include various types of plan. The modern volumes are more likely to include sample unit outlines instead of daily plans, and to refer to the periodical literature for illustrative materials.
- b. The texts on the teaching of special subjects are also good sources of illustrative plans.
- c. The manuals which accompany series of texts in specific subjects often contain a few sample plans.

2. *The Education Index*

Scores of articles are available dealing with the planning or teaching of specific lessons. These are more frequent in periodicals designed for use by classroom teachers than in the more general magazines.

3. *The local training school*

The instructor or training-school staff should have built up a large collection of actual plans. This collection should contain good, bad, and indifferent plans, thus affording varied types of analysis by students.

DISCUSSION, EXERCISES, AND REPORTS

1. Individuals or small committees may analyze for form only a selected number of traditional and modern daily plans. Compare forms with that given in this chapter. Develop a new form if desired.

2. Individuals or small committees may analyze a few very good older plans to determine the theory of learning and teaching which is implied. Compare critically point by point with the principles advanced in this volume.

3. Individuals or small committees may analyze and report upon plans found in the current periodical literature, noting form, content, and principles of teaching and learning implied.

4. Construct a lesson plan for one day's work or for a relatively short period

of time. This daily plan must be selected from a total classroom sequence which is typical of everyday teaching. Teachers in service may submit their own on-going plans. Students should organize a plan to fit a sequence being observed or may construct a plan based on a given piece of subject matter.

5. Following the type of discussion which will follow from analysis of plans submitted in (4) above, a series of daily plans covering a sequence of some size may be constructed. In real situations this would be in outline form to allow for changes from day to day as the work developed. In very formal situations plans are made far in advance.

- a. Beginning students should make these plans in considerable detail in preparation for practice teaching, using preferably material they will actually teach in the near future.
- b. Teachers in service should use the actual materials and sequences appearing in their daily work.

Supplementary Exercises

The following exercises may precede those above with classes made up of young, beginning students who possess little background and as yet little observational contact with schools in operation.

1. Think over the work of some of your own college instructors for the last few days, a week, a month. Does the work seem to be organized around definite objectives and so planned as to develop those objectives, or is it "one chapter after another?" Take a specific instance and analyze in some detail.

2. The instructor may analyze critically and in some detail a lesson plan or series of plans, copies of which are accessible to the class. The development should be conversational with free questioning from the class.

3. The instructor and class may construct a plan in class, working out details conversationally and with stress on class contributions to the development. This may take two class periods or more. Class preparing for elementary teaching may do this as a committee of the whole. Those preparing for secondary teaching will need to divide into committees in terms of subject field. One committee and the instructor may develop an illustrative plan.

READINGS

- BOSSING, Nelson, *Teaching in Secondary Schools* (Boston, Houghton Mifflin Company, 1935, revised 1942), Chap. 7. Most extensive modern discussion, many good suggestions.
- BUTLER, Frank A., *The Improvement of Teaching in the Secondary School* (Chicago, University of Chicago Press, 1939), Chap. 17. Excellent.
- SCHORLING, Raleigh, *Student Teaching* (New York, McGraw-Hill Book Company, Inc., 1940), Chap. 5, particularly pp. 99-109.
- UMSTADT, J. G., *Secondary School Teaching* (Boston, Ginn and Company, 1937). Pages 221-233 contain a discussion of general principles.
- WYNNE, John P., *The Teacher and the Curriculum* (New York, Prentice-Hall, Inc., 1937), Chap. 19. Good, brief general discussion of principles.

Plan Books

A number of plan books for teachers are available commercially. Many school systems have organized their own books. Semester outlines, weekly organization, and questions for single lessons are usually required. An exhibit of these books should be available for examination by students. Students may collect a few from nearby school systems.

THE GUIDANCE OF MAJOR SPECIALIZED LEARNING ACTIVITIES

Supplementary Material For use with Chapters 9 to 15 of *The Guidance of Learning Activities*

1. The Guidance of Problem-Solving Processes
2. The Acquisition of Understandings, Attitudes, Appreciations, and Values
3. The Acquisition of Motor Skills
4. The Provision of Opportunities for Creative Activity
5. The Use of Supplementary Materials and Instructional Aids
6. The Log of a Fifth-Grade Unit, with Annotations and Comment

The emphasis throughout *The Guidance of Learning Activities* has been upon the unity, the wholeness of learning situations. All aspects of a given learning situation are functionally interrelated under purpose. There are no sequential steps, disjunctive levels, separate lesson types in learning. The functional or experience unit clearly exemplifies the desirable learning setting. Modern improved assignments may also approximate a good setting.

Earlier volumes on principles of teaching, in contrast, often presented separate lesson types such as problem-solving lessons, appreciation lessons, motor-skill lessons, inductive lessons, drill lessons, and so forth. This was based upon earlier psychological statements of separate kinds of learning. Different types of learning activity can be distinguished, but within any given learning situation these will be experienced as they appear within the unified whole. A learner at one time may be engaged in securing information from a printed page; at another, discriminating between conflicting meanings from different writers. The learner may need to acquire here a level of motor skill, there a level of precision in verbal expression. He may be for a time primarily concerned with developing an attitude, with clarifying an understanding, with what is loosely called problem-solving. Within problem-solving he may be engaged with still other subsidiary activities: defining the problem, searching for related information, evaluating his own and others' statements, and so on.

Students in training and teachers in service constantly ask for help with the details of the various activities appearing within the larger sequence. The supplementary material here provided gives first a brief summary of the underlying psychological processes, and second, a reasonably detailed summary of appropriate classroom procedures. Exercises and bibliography accompany each topic.

The last chapter contains the log of a typical unit as it developed in the classroom, together with brief running commentary upon the procedure.

The supplementary pamphlet of approximately 180 pages containing the above materials is available through D. Appleton-Century Co., Inc., 35 West 32nd Street, New York 1, N. Y., at a price of \$1.25 per copy.

Part IV

THE IMPROVEMENT OF TECHNIQUES COMMON TO BOTH ORGANIZATIONS

A number of techniques and types of information are necessary whether one is using traditional or modern methods. The seven chapters in this part present these materials.

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The Guidance of Drill or Practice

INTRODUCTORY QUESTIONS

1. What is the educational implication of the maxim, "Practice makes perfect?" Could practice ever make imperfect?

2. Stand a mirror on a table. Immediately in front of it place a sheet of paper on which you have drawn a two-inch square. (Have about a dozen sheets prepared, each with a square drawn on it.) Now place, or have some one hold, a cardboard screen of some sort over your hands so that you cannot see your own hands except by looking in the glass. Try to draw the diagonals in the square. Draw with ordinary speed; don't trace them cautiously.

Suppose you were asked to repeat this forty times. (Actually do so if there is time.)

3. A pupil who played "hookey" constantly was discovered sneaking back into school for a certain reading period. Some of this work was rather ordinary drill work and word study.

4. Many persons make excellent progress at first in learning to play golf or tennis, in learning to swim, etc. Then comes a period in which they seem unable to improve at all.

5. Show how the careful initial study of a poem, a piano selection, or some similar item, might involve a very different study process from that used later for purposes of retention.

6. When school opens in September, many teachers complain that the pupils must have been poorly taught

What different types of result might you obtain?

Might any improvement be noticeable? Might there be none? Could you even do more poorly with practice?

Explain clearly the conditions under which the various results might be secured?

How might you avoid the lack of improvement or retrogression, assuming that it appeared in your case?

What reasons can you advance for his returning for this period?

What probable explanations can you advance?

How remedy the situation?

What is the probable basis for this

the previous year, since they do not know even the simple fundamental skills in arithmetic, etc.

situation? (Do not answer by saying the children have forgotten the material.)

The processes known as drill or practice are widely used in the classroom and in real life. Drill is exercised on three general types of learning product: (a) motor skills such as in handwriting, pronunciation, handling tools and machinery, athletic events and games; (b) mental skills such as multiplication and addition, recognition of symbols in silent reading, and many others; (c) arbitrary associations such as the sequence of letters in spelling, use of symbols in map reading, and the like. Map reading may and should be a meaningful instead of an arbitrary association but often is not. Reading may be so poorly taught that the associations are arbitrary and not meaningful. The object of practice is to develop facility in the skill and to secure automatic recall of the arbitrary associations. Recall of many of the latter can be secured through meaningful association instead of by drill, as will be developed later.

Vigorous controversy over drill. The place of drill in the instructional scheme has precipitated more vigorous discussion, probably, than almost any other feature. Differences of opinion are violent; silly nonsense is widely disseminated. The current arguments arise because recent research has contradicted in startling fashion many time-honored beliefs and practices; because the research findings are often stated in terms unfamiliar to the average teacher. Careless or inadequately explained statements have also contributed to the misunderstandings.

Experimental psychologists and educators on the one side, armed with facts from both laboratory and actual classroom research, raise grave questions about the value of typical drill as at present operated. Teachers on the other side, armed with opinions based on experience, spring to the defense of drill methods which they have used for years.

The teachers fall into two groups: (a) those who are honest and sincere in their advocacy of drill methods but who are ignorant of the facts; (b) those whose reaction is an irrational defense mechanism because a personal belief or routine has been attacked. When the facts are all in and understood the competent teachers and the research experts stand together. Let us examine and explain some of the statements around which the controversy rages. Modern psychologists and educators are accused of saying that:

1. Drill should be eliminated from school
2. One cannot learn by repetition
3. One does not learn anything through drilling

The traditional teacher stands fast upon the statement that "drill and lots of it is the only way to learn certain things."

The elimination of drill from the classroom. This statement is easily disposed of through a series of definite unequivocal statements.

1. The elimination of drill from the classroom has never been advocated by any competent psychologist or educator anywhere at any time.¹
2. Typical traditional drill methods waste huge amounts of time and energy and result in poor learning. Detrimental results are actually produced by too much drill.
3. Modern educators and psychologists advocate several material and fundamental changes in the amount and nature of drill.

The evidence and the arguments supporting these statements are extensive and clear-cut, appearing widely in journals devoted to experimental education and experimental psychology. As a matter of fact, early writers both lay and professional long ago recognized the facts now being demonstrated through research. The traditional teacher could have arrived at the same conclusions had she been trained to analyze her own processes and results. Lacking this training, she is honestly bewildered by criticisms of procedures she has regarded as safe and sure. Many teachers who repeat the charge that the modern school eliminates drill are ignorant of research facts and also of the fact that the modern school provides more and better practice than the traditional. A few teachers repeat this charge as a form of "fifth-column" sniping against educational methods which they do not understand, do not like, and are afraid to try.

Simple explanations will be attempted in the following paragraphs in the hope that misunderstandings will be clarified, the fears of sincere traditional teachers will be removed, and that classroom procedure eventually will be improved. A good deal of the difficulty, as will be seen, turns upon definitions of words and clarifications of common-sense meanings.

One does not learn by mere repetition. The traditional teacher and the average parent are sure this is "theory," "high-falutin' nonsense." It seems so clearly opposed to common sense. On the contrary, however, brief attention to everyday common sense experiences in and out of the classroom show that mere repetition is not educative. One hesitates to repeat the ancient and bewhiskered joke about the boy kept in after school to write one hundred and fifty copies of "I have gone." Finishing the stint in the absence of the teacher, he turned in his paper with a note stating, "I have went home." The repetition was recent and frequent but was without meaning or purpose. It did not change his lan-

¹ The excellent discussion of the development of skill in Chapter 8 of L. Thomas Hopkins, *Interaction* (Boston, D. C. Heath and Co., 1941), is sometimes quoted as advocating the elimination of drill. The discussion is somewhat ideal but clearly provides for refinement of skills. Careful reading of the entire volume further supports this view. Hopkins' discussion is an antidote for the view which upholds excessive repetitive drill.

guage usage. Scores of schoolboy howlers involving curious blunders in spelling and arithmetic and reading are available showing that gross errors are made in real situations regardless of the amount of isolated repetitive drill. Ask any individual how many steps there are in the staircase in his home, how many steps up to the coach of the commuter's train he rides twice a day, or for similar information from any other situation in which he has acted repetitiously ten thousand times. Mere repetition without attention or motive will not give the answer. These are but anecdotes or stories and prove nothing. Excellent research studies are available and in quantity. Teachers brought up on the connectionist S-R bond theory of learning and who are not familiar with recent research by connectionist psychologists are the most sure that repetition is educative. On the contrary, Thorndike,² the leader of the connectionist school, has presented some of the best experiments showing that mere repetition will not produce desirable results.

The discussion to follow may in part seem to some teachers like quibbling. Careful analysis and understanding are necessary, however, if drill processes are to be operated effectively. Let us then analyze and explain further the statement demonstrated by research, that mere repetition is not educative.

First, pure, precise repetition does not actually enter the situation. One never performs an act twice in exactly the same way. Arbitrary associations, formulas, or series of symbols can, of course, be repeated precisely under dictation and correction. Experiments show that mere repetition even here may be definitely miseducative. *Second*, the stimulus situation is the factor which is repeated. Each stimulus calls for a retrieval of the skill. If the stimulus situation is real to the learner it guarantees motive and attention. Retrievals with insight and which in turn add insight do promote the development of the desired skill. Retrieval under sensible

² E. L. Thorndike, *Human Learning* (New York, D. Appleton-Century Co., 1931). Contains much research material and many modifications of the original statement of the laws of learning. See also:

William F. Bruce, and Frank S. Freeman, *Development and Learning* (Boston, Houghton Mifflin Co., 1942). Chapters 11 to 15, especially the two latter, contain good summaries with reference to many primary studies.

Raymond H. Wheeler, and Francis T. Perkins, *Principles of Mental Development* (New York, Thomas Y. Crowell Co., 1932). Pages 348-362 contain very good brief summary with reference to primary studies.

National Society for the Study of Education, *Forty-First Yearbook*, Part II, "The Psychology of Learning" (Bloomington, Ill., Public School Publishing Co., 1942). Much excellent discussion scattered through Chapters 1 to 7. Chapter 10 summarizes materials on practice and learning. Bibliographies for first seven chapters contain good selections from primary sources.

Charles H. Judd, and others, *Education as Cultivation of the Higher Mental Processes* (New York, The Macmillan Co., 1936). Excellent materials and references to primary studies scattered through volume. A particularly good example is found on pages 59-71.

Research studies on the learning of reading, writing, arithmetic, spelling are particularly rich in materials bearing upon this point. These can be found in journal articles, in specialized monographs, and in volumes on the teaching of these subjects.

conditions will promote learning, whereas mere repetition will not. *Third*, the stimulus situations themselves vary, demanding exercise of the skill under differing conditions and from different positions. This in turn calls for variations in the skilled act itself. The development of effective skill is distinctly enhanced by this situation. Repetition of the traditional type, however, is precluded. Continued insistence upon mere repetition by itself will actually hamper the development and use of the desired skill. *Fourth*, many acts are performed with reasonable skill without previous repetition. Common-sense demonstrations are found in the use of the left hand when the right is lost or temporarily incapacitated. Experimental evidence is also available. *Fifth*, insistence upon repetition of a fixed routine often blinds the teacher to what is actually going on within the pupil. The teacher assumes that he is repeating the number combination or the letters in the word or what not. The learner, instead, may be devising any number of ways to secure the answer. Some of these will be desirable and represent progress toward meaning and skill; others will be clumsy and detrimental. The teacher interested in enforcing faithful repetition of the model may not discover this learning process and thus cannot participate and give guidance to the learner. Discovering this normal variable behavior, some teachers actively repress it. The learner, however, learns what he repeats with meaning to him, not what he verbalizes for the teacher without meaning to himself.

One does not learn through drill. We may be sympathetic with the annoyance of the teacher with this statement, even though it is correct. The statement is a careless one, misunderstanding being in part a play on words. Learning, in truth, precedes drill. Drill cannot enter until something has been learned to some degree. Drill is to perfect and facilitate a skill or association that has been learned. The inference for teaching is important and once understood will remove the teacher's annoyance. Understanding or meaning in some degree must be attained before drill can be of value.

"Drill and lots of it is necessary! the only way to learn certain things." Few statements are insisted upon so vigorously by traditional teachers as is this one. We may disregard the few who so insist because they are afraid of new procedures; because they will not allow their comfortable routines to be disturbed. The majority of teachers who insist upon "drill and lots of it" are usually quite honest. They are ignorant of the facts. They are naively unaware that other methods are available. They are often quite unaware of the real results being attained through their imposed drill.

The process of acquiring skills and associations, *if these are imposed upon the learner in advance of need or understanding*, certainly does necessitate great expenditure of time and energy. It does actually demand "drill and lots of it." The traditional school centered upon adult-deter-

mined skills and not upon the growth of the learner cannot possibly avoid excessive drill. Traditional teachers lacking recent contact with training courses cannot help believing that drill and lots of it is natural, desirable, inevitable. A wholly different conception will emerge, however, if the total learning situation is changed. Suppose that skills are not introduced until a need is felt or stimulated; that meaning is developed through exploration and insight before practice starts. Skills to be practiced are derived from a functional situation and serve a recognized need of the learner. The experimental evidence concerning such situations is clear-cut. The amount of time and the number of retrials necessary for the development of desired skill are enormously cut down. The evidence shows also that the antagonistic attitudes and detrimental work habits which result from excessive routine drill are absent under the modern procedures. This has been mentioned frequently in previous chapters.

Even worse, the evidence shows further that insistence upon excessive drill can in given cases actually prevent the development of the desired skill. Disintegration of such skill as has been developed can actually result from excessive drill. The pupil actually gets worse in the very thing which he is being forced to repeat! Excessive drill on number facts has been shown to destroy understanding of the relationships governing the number system itself.

The belief that drill and lots of it in the traditional sense of mere repetition is good is flatly contradicted by the facts. Teachers, sincere and otherwise, will profit greatly, as will their pupils, through understanding of modern methods of teaching which enable pupils to achieve satisfactory levels of skill rapidly and economically.

The nature of a skill. The teaching of skills in school and in industry has been handicapped for generations because of the persistence of uncritical common sense notions concerning the nature of a skill. A number of new conceptions based on extensive and valid research must be acquired by teachers before the guidance of skill learning will be well done.

First, teachers in school and in industry will be aided greatly if they will regard skills as refinements of meaning and not as isolated mechanisms. Skills are the means for making understandings operative. Skills have no meaning themselves separate from functional situations. This general conception of learning has been developed throughout this volume. The prime corollary is that skills to be learned must be met first within, and derived from a functional or meaningful situation. The skills are then meaningful to the learner; this alone will reduce the time and energy necessary to develop facility. The second corollary is that after first meeting a skill in a functional situation, the learner will meet it again and again in meaningful situations before practice is even thought of. Learners should engage in many exploratory and experi-

mental trials, should ask questions, study diagrams, observe skilled performers, for the purpose of developing clear perception of the movements and understanding of the use of the skill. Practice should not begin in fact until sufficient understanding has been achieved.

Second, skills are not precise, fixed routines to be achieved through unthinking repetition. Skill performance is inherently variable. It varies from person to person, from time to time with the same person, and from situation to situation. Skills must also be developed for use in varying situations and positions.

Third, the acquisition of a skill has two phases: the (a) integrative, in which perception of the movement and meaning are developed; and (b) the refining or facilitating in which precision is developed. Many children of normal intelligence, often superior intelligence, present puzzling inability to learn to read or to compute, or to master certain simple tool skills in traditional schools which present the skills in advance of understanding. Placed in meaningful situations with ample opportunity to develop understanding, these children learn easily and rapidly. This is true with adults in industry. The introduction of modern methods of training foremen, and in turn the workmen, has greatly improved skill learning in industrial establishments.

* **The nature of educative practice.** The student, by this time, is doubtless wondering if his common sense is of any value! Surely repetition must have some place. How can one achieve a skill except by repeating it, by practice? Practice is obviously necessary in the affairs of the school-room and life. The foregoing pages should have prepared us for the answer. The analysis was not quibbling but a necessary preliminary to stating the principles governing practice or drill. Drill is necessary in school if for no other reason than the time factor. Skills must be attained, granted they are in keeping with maturity levels, more rapidly than they ever could be by incidental and accidental practice. Modern principles in the guidance of practice, are, as has been hinted, very different from those now widely used.

A quick summary of points from Chapter 5 and from preceding pages will aid in understanding the discussion of principles of practice which follows.

1. Skills are refinements of meaning and not isolated mechanisms. Perception of the movements and understanding are essential.
2. Skills are not precise fixed routines but are inherently variable.
3. The acquisition of a skill includes two phases, the integrative and the refining.
4. Trial-and-error learning usually develops when the learner does not understand the use of the skill or does not have clear perception of it.
5. Initial delay and exploration usually develop insight which facilitates practice.
6. Retrieval with insight seems to be superior to trial and error. Approximation-and-correction is a better term than trial-and-error.

Several of these principles with modification apply to the learning of arbitrary associations as well as to skills.

Organized practice should be preceded by an exploratory stage during which the learner experiments, seeks guidance, devises several alternative ways of acting. The learner's performance should approximate a desirable method ever more closely as meaning develops. The many "crutches" devised and used by children in arithmetic since time immemorial actually represent methods devised in the light of the children's insight or level of understanding. Contrary to common belief the use of crutches is not detrimental,³ provided that practice is accompanied by increasing understanding. Crutches will be dropped as new meanings develop in the children. Persistence of crutches indicates that the learners are not developing understanding. This may be owing to imposition of too complex skills, to poor teaching, or to indifference, in turn owing to some factor in the past history of the learner. The majority of evolved methods under good teaching will not be "crutches" but will be ever closer approximations of what is known to be a good procedure.

The *integrative* phase of skill learning in which meaning is developed demands *varied* practice which means many functional contacts and exploratory activities. The *refining* phase in which precision is developed demands *repetitive* practice. Varied practice by itself yields meaning but not proficiency; repetitive practice by itself yields efficiency but not meaning. Competent varied practice in early stages will reduce greatly the amount of repetitive practice needed later.

Derivation of skill initially from functional situations with varied practice in early stages will not enable children to pass "standard" tests with norms based upon repetition of the answer without meaning. Repetitive practice from the beginning will achieve this result but will not necessarily enable the child to use the given response intelligently. A poor form of response without meaning may be "frozen" by too early repetitive practice and the later development of both meaning and increased skill definitely prevented. Parents and teachers must accept lower scores in early grades as necessary and desirable. Mature learners with need established, meaning cleared, and goal understood can engage increasingly in the second type of practice, the repetitive. Analysis and added insight will still be present.

The terms, repetition, drill, practice, may be used safely in the light of the foregoing pages. Intelligent, meaningful, attentive, repetitive, practice will increase the efficiency of what is repeated. Repetitive practice should be preceded by a period of varied practice. Due allowance must be made at all levels for variability of performance and of individuals. Repetition which is interesting, lively, and rhythmic is definitely enjoyed by children, as witness the liking for the nursery rhymes and

³ William A. Brownell, "The Place of Crutches in Instruction," *Elementary School Journal*, Vol. 34 (April, 1934), pp. 607-619.

bedtime stories in which jingling or rhythmic repetition is the feature. Adults enjoy musical and vocal roundelays and songs in which the chorus is repeated. Repetition which is dull and dreary because it is meaningless is the type which prevents learning and develops antagonistic attitudes.

General applications to classroom practice. Applications and illustrations have been included many times in previous chapters. Suffice it here to illustrate briefly for emphasis and integration. Teaching the multiplication tables and the parts of speech as direct objectives is putting learning in reverse with a vengeance. Isolated skills in naming and using parts of speech, identifying and reproducing types of sentences, in handwriting, and in spelling cannot be combined into understandings, attitudes, and values. These skills are to be found within the total meaningful situations which they serve and from which they derive meaning. Skills are to be made more facile to enhance the meanings and attitudes. Initiating penmanship through a series of graded exercises with curves, ovals, and angle strokes practiced separately, or art and music through practice on abstracted elements, is seriously detrimental to learning. Varied practice of meaningful items should come first, followed by more systematic practice though still of meaningful materials.

Summary concerning initial, integrative drill. The material to this point is admirably summarized in the most famous of the research studies dealing with drill. The experiment dealt with teaching number combinations through drill methods.⁴

To summarize, the data collected in this investigation seem to warrant several inferences. First, drill, as it was administered in this study, does not guarantee that children will be able immediately to recall combinations as such. The reason lies in the fact that drill as given by the teachers does not necessarily lead to repetition on the part of pupils. Second, in spite of long-continued drill, children tend to maintain the use of whatever procedures they have found to satisfy their number needs. Third, drill makes little, if any, contribution to growth in quantitative thinking by supplying maturer ways of dealing with numbers.

⁴ William A. Brownell and Charlotte B. Chazel, "The Effects of Premature Drill in Third-Grade Arithmetic," *Journal of Educational Research*, Vol. 29 (September, 1935), p. 26. See also:

William A. Brownell, "Two Kinds of Learning in Arithmetic," *Journal of Educational Research*, Vol. 31 (May, 1938), pp. 656-665. A very good discussion for the average student.

Guy T. Buswell and Lenore John, *Diagnostic Studies in Arithmetic*, Supplementary Educational Monographs, No. 30 (Chicago, Department of Education, University of Chicago, 1926).

Herbert T. Olander, "Transfer of Learning in Simple Addition and Subtraction," *Elementary School Journal*, Vol. 21 (February, 1931), pp. 435-6.

T. Raymond McConnell, "Discovery vs. Authoritative Identification in the Learning of Children," *Studies in Psychology of Learning*, II, Educational Psychology Series, No. 2, University of Iowa Studies in Education, Vol. 9, No. 5 (Iowa City, Iowa, University of Iowa, 1934). This study presents evidence which differs from the majority of studies in the field.

The statement of these conclusions in no way implies that drill has no place in arithmetic. The contrary is the fact: drill is exceedingly valuable for increasing, fixing, maintaining, and rehabilitating efficiency otherwise developed. Nevertheless, these conclusions do particularize the things which drill will *not* do. To be more effective drill must be preceded by sound instruction. This fact, obvious enough upon second thought, should lead to a change in research interest in arithmetic. It should encourage the more vigorous study of the problems of learning and of initial instruction, even if this change in interest should lessen somewhat the extraordinary attention now given to drill. Learning, *not drill*, is the important question in arithmetic.

Brownell made the following criticism of the theory that the teaching of primary arithmetic should consist in drill on individual combinations.⁵

When the process of learning in arithmetic is conceived to be the mere acquisition of isolated, independent facts, the process of teaching becomes that of administering drill.⁶ This is the second debatable theory which now dominates instruction in primary arithmetic. True, the drills may be sugar-coated as games and races, but the process—drill or repetition—remains the same. Repetition alone is regarded as sufficient to build up the specific, direct connections which are sought in the case of $8 + 4 = 12$, $7 - 5 = 2$, and the host of similar items of which arithmetic is held to consist. One of the new books on methods of teaching arithmetic states that the forty-five simple additive combinations are intrinsically no harder for children to learn than are the names of forty-five children in the school or in the neighborhood; in both cases the children have only to establish bonds or connections. The process of teaching the combinations is simplicity itself according to the scheme of instruction recommended by this same book: Tell the children that 7 and 5 is 12, make sure that they can give the answer 12, and then drill them. If later a child cannot give the correct answer for $7 + 5$ or if he delays unduly long in giving the answer, tell him the answer in order to prevent his counting or solving the combination for himself and drill him some more. Use flash cards and other standard forms of drill, and drill him until he at once gives the answer 12 to $7 + 5$ however and whenever it is presented. Drill him, in other words, until, as one boy said who was being instructed in arithmetic according to this plan, the answer is "drilled into" him.

Such a theory of teaching the combinations fails to give adequate consideration, first, to the nature of the material which is to be learned and, second, to the behavior of children under conditions of drill. These two weaknesses in arithmetic instruction by means of drill need further elaboration.

In the first place, drill, that is, repetition, is inadequate as the chief method of teaching arithmetic in the primary grades because it is ill adapted to the type of material which is to be taught. The child who can promptly give the

⁵ William A. Brownell, *The Development of Children's Number Ideas in the Primary Grades*, Supplementary Educational Monograph, No. 35 (Chicago, Department of Education, University of Chicago, 1928), pp. 197-199.

⁶ It will be noted that the term "drill" is here used as synonymous with "repetition." Thus, when a child is "drilled" on the combination $7 + 5$, he repeats $7 + 5 = 12$ time after time, without deviation from the formula and without "thinking" about it, until a direct association has been established. It will be noted, further, that, if a child rebels against the monotony of the drill (repetition) and through curiosity endeavors to find reasons for the fact he is required to learn, he is no longer being "drilled" in the sense in which the term is here used, still further, it should be noted that, if he actually learns the number fact through his own exploration and reasoning, the credit for the learning in no way belongs to "drill." Brownell and Chazal, *loc cit.*

answer 12 to $7 + 5$ has by no means demonstrated that he knows the combination. He does not "know" the combination until he understands something of the reason why 7 and 5 is 12, until he can demonstrate to himself and to others that 7 and 5 is 12, until he is so thoroughly convinced that 12 is the right answer for $7 + 5$ that he can give it as the answer with assurance of its correctness, and until he can use the combination in an intelligent manner—in a word, until the combination possesses meaning for him. The additive combinations are vastly harder for children to learn than are the names of other children because the children's names are concrete and tangible and already possess meaning while the combinations are abstract and intangible and at the beginning quite meaningless. Furthermore, it is futile to expect the intelligent use of combinations when intelligence plays no part in acquiring command over the verbal statements of the combinations.

In the second place, reliance on drill as the method of teaching the primary number facts neglects the behavior of children under conditions of drill. The truth is that children do not react to drill in the manner in which their teachers expect them to react. The pupils who served as subjects for the individual analyses in Grades IIA, IIIA, and IVA were taught the additive combinations, with the exception of a very few of the simpler combinations which they learned in Grade IA, very much after the fashion which has been outlined, namely, by being told the answers and by being required to repeat the formulas. Drill was the chief, if not the only, method of teaching, and roundabout procedures not only were not suggested by the teachers but were discountenanced by the teachers when they were used by the pupils. The analyses reported in chapters vi and vii reveal how these children, taught the combinations by drill, actually think of these number facts. As has been shown, some of the pupils have tried blindly to memorize the combinations. These pupils varied in their answers for given combinations, were never certain of the correctness of their answers or were always certain of them regardless of their correctness, and had no method, except perhaps counting, by means of which to secure answers for combinations which they did not know. Other pupils regularly counted the combinations without the knowledge of their teachers. Still other pupils gave evidence of having habituated certain solutions for combinations, such as $8 + 4 + 1$ for $8 + 5$, instead of habituating the combinations themselves, as their teachers expected them to do. Still other pupils had apparently habituated the combinations in spite of the conditions of classroom drill in arithmetic, that is, by first acquiring meaning for the combinations through a series of steps in their thinking about the combinations and then by "short-circuiting" these methods of thinking indirectly of the combinations in favor of direct habituation of the combinations. In short, if one may generalize from these cases, many pupils tend to build up for themselves meanings for the combinations and then, and not until then, do what their teachers think they have done from the first, namely, memorize the combinations as combinations. In view of the careful efforts of the teachers to keep the children from indirect, roundabout procedures in thinking of the combinations, they were amazed to learn what had actually been going on in the minds of the pupils during the course of the drill by which they were expected to learn the number facts.

Such considerations clearly suggest the futility of drill as the sole method of teaching number facts, for many children, even under the conditions of drill which are made to prevail in the classroom, learn arithmetic not by the repetition of formulas but by methods which emphasize for them the meaning aspect of the facts which they are required to learn.

Systematic practice following initial understanding. The foregoing discussion has aimed chiefly at the initial stages of practice in which little children or mature learners are attacking a complex skill for the first time. The characteristics of later practice are easily summarized.

Children will often be further interested in a skill which they have met in a functional situation. The teacher may supply exercises at this point through which children gain further skill and also further understanding. Children will often propose that on-going activities be temporarily suspended while skill is perfected. Repetitive practice ensues, but it is meaningful. Modern schools ordinarily provide practice or "skill" periods separate from the unified activity period. The common skills of reading, writing, arithmetic, spelling, of language arts, of handling tools and materials are practiced. These practice periods grow out of, are motivated by, are given meaning by the activities of the learning unit. The materials used in these practice periods, furthermore, must themselves be meaningful.

Children themselves will derive, with maturity and experience, an extremely important understanding of and generalization about drill and practice. The experience of practicing is itself recognized as sensible and useful in achieving purposes set up by the learner. Drill is recognized as a natural accompaniment of learning. Pupils are then ready to accept and profit from considerable repetitive practice. The thing practiced must be sensible but the relation to the goal may be more remote in time. The earlier discussion of deferred values and acceptance of remote aims explains this. This recognition of the place and usefulness of practice activity may come at any age, but its extension and drive will naturally differ with maturity level. This recognition does not emerge readily and may never emerge in traditional schools, since the pupil experiences are with the wrong type of drill.

Theoretically, it might be possible to provide enough functional situations to produce skill without drill. More can be done in this direction, but practical, functional illustrations of rather remote connection should not be dragged in artificially or they will be almost as meaningless as some of the abstract exercises. Teachers need definite training in recognizing valuable meaningful applications, especially in arithmetic and mathematics. Illustrations in the social studies, language arts, nature study, health, and the like are recognized more easily by more teachers. Truly functional, real-life applications simply cannot be supplied in sufficient number to develop necessary skill. Furthermore, learners come eventually to recognize and accept drill as sensible. Teachers at all levels, therefore, particularly on upper levels may safely use systematic drill experiences. Obligations exist to see that meaningful teaching precedes the initiation of practice and that continuing practice is operated under sound principles. There is no inconsistency between functional teaching and practice for skill.

General principles underlying practice or drill. A number of guiding principles may be stated.

1. *Practice should be only upon materials susceptible to automatization.*
 - a. Skills and arbitrary associations are perfected through practice.
 - b. Meanings, attitudes, and appreciations should not be included in this procedure. (Much so-called "review" in many schools is in reality drill. This indicates a gross misunderstanding of the nature of learning.)
2. *Practice must be meaningful.*
 - a. *Varied contacts to develop meaning should precede repetitive practice.* Allow time for meaning to develop before starting practice.
 - b. The element to be made precise should be *derived from a meaningful unit; be useful in the unit; be useful in life.*
 - c. The element must be *applied soon and often in real, non-practice situations.* (This is another way of saying that it should be useful in life, hence meaningful to the pupil, hence attacked willingly.)
 - d. The attitude should be achieved and maintained that *practice is a normal and needed adjunct to complete learning, not just a chore.*
3. *Practice must be on the things to be acquired.*
(This was formerly stated as, "A correct start must be guaranteed." A preferable statement today would be, "Initial learning must be carried to the point of understanding what is to be done.")
4. *Practice periods at first will have large diagnostic emphasis.*
 - a. Perfect reproduction will not be asked nor expected.
 - b. Retrials will be scrutinized.
 - c. Correct responses must be recognized as contributing to the learner's ends; incorrect responses must be recognized, explained, and consciously avoided.
 - d. Self-guidance and supplementary suggestions from the teacher will be prominent.
 - e. Time will be allowed for varied trials and development of meaning and control.
5. *Practice for speed should be subordinated to practice for accuracy at first, and the two progressively balanced.*
6. *Practice periods should be relatively short and distributed over a period of time.*
 - a. Practice periods should taper off as mastery is achieved.
 - b. Practice periods for refreshing or recall may sometimes be necessary under formal learning conditions.
 - c. Over-learning within reasonable limits and in relation to maturity level is desirable.
7. *Practice periods should be lively, interesting, and pleasant.*
 - a. Intrinsic interest will result if the skill or association grew originally out of a meaningful situation.
 - b. A variety of devices may be necessary in formal schools where drill work does not grow out of meaningful situations, or in cases where intrinsic interest cannot carry over a long period. Applications to meaningful situations are superior but may not always be available.
8. *Practice time and effort should not be wasted on accessory and non-essential processes.*

Probably every one remembers from school days the laborious copying of practice exercises from the board preparatory to working them. In shop work, drawing, nature study, etc., it often took more of the period to get the materials and to put the tools in shape than was left for actual work. Long paragraphs and sentences were copied for purposes of correction. Compositions were recopied endlessly because the margins were a sixteenth of an inch too wide, or because a few words were misspelled. Traditional teachers by the hundred use these procedures and think nothing of it. The waste of time involved borders on the stupid.

A few young teachers fresh from training schools often possess systematic plans for the elimination of common errors in language, or for the teaching of some given motor skill. These procedures are then applied with children who never heard of the language error or who can have no use for the specific skill. This again wastes time.

Multigraphing machines and hektographs are now readily available even in rural schools. Teacher-and-pupil-prepared material is superior, but commercially prepared materials are often wholly legitimate and fit into meaningful situations.

9. *Practice should proceed under some pressure.*
10. *Practice proceeds best under a small amount of emotion.*
11. *Progress should be apparent to the pupil.*
12. *Practice processes and requirements should be adjusted to individual differences.*
 - a. Mastery of acceptable skill levels will be achieved at different times by different pupils. Some will be excused earlier than others.
 - b. Individual practice is necessary in addition to the group exercises.
 - c. Each pupil should make several responses during oral practice.
 - d. When it is necessary to use devices, these should be suited to different levels of maturity, temperament, and ability.
13. *Practice procedures should make liberal use of material prepared by teachers and pupils, but commercially-prepared materials are in many cases useful and legitimate.*

Important distinction between drill and review. The traditional schools often give the last week or two of a semester to "review." The writer, visiting high schools continually, has seen several hundred of these reviews in progress. In practically all instances nothing that could be called a review was present. The process was pure drill. The old material was gone over again just before examinations in an effort to recall and to refresh much that had been studied earlier in the term. The application of repetitive drill methods to content materials grows out of a wholly erroneous conception of learning. It is a natural outgrowth of the "text-covering" point of view and can result only in verbalisms.

A drill attempts to fix certain automatic skills or other associations. A review is the reviewing or reteaching of old materials for the purpose of gaining new meanings and understandings, or attitudes, for clarifying and extending meanings derived from original learning contact. A well-selected and skilfully taught review lesson in the traditional school is an

index of good teaching ability. Teachers with a good view of the course of study, and possessed of ability to see relationships which are important but not obvious, can construct such lessons. The review of the old material is often introduced so skilfully and with such seeming inevitability that the class will work well on materials already known from one angle but now reinterpreted from another angle. They do not see themselves as working repetitiously on material previously sucked dry of interest. A teacher in intermediate grades taught the "William Tell stories" under the aim, "Let us see how William Tell became the Father of his Country." Before the series of lessons was over, the class had recalled and used nearly all they had previously known about the life and activities of George Washington. Another class engaged in a popular campaign, "Let us see why we should swat the fly," reviewed and restated much that they had learned previously under a different aim about germ carriers. An upper-grade class working on the aim, "Should our local government institute civil service requirements for certain designated offices?" obtained a very good review of the "Spoils System" which they had studied previously in connection with Jackson's administration. The introduction to the reading of "The Man Without a Country" might well be a review lesson bringing in previous study of Aaron Burr and Benedict Arnold. There is wide opportunity for such lessons, limited only by the teacher's ingenuity. The illustrations just cited are all taken from typical traditional teaching of the improved type. Modern units, whether subject-matter or experience, almost naturally provide for continuous lifelike review.

The workbook as a source of drill material. Commercially prepared drill material has been available for years in the form of flash cards, reading charts, printed sheets of arithmetic problems, tablets of such problems, sentences and paragraphs in which language errors are to be corrected, and many others. The most carefully prepared and organized form in which this type of material appears is the "workbook." A workbook is a paper-bound volume (as a rule) approximately $8\frac{1}{2}$ by 11 inches. It contains an organized series of drill exercises, together with directions for use, instructional aids, diagnostic devices, and self-testing materials. Workbooks are usually printed on soft paper for pencil and illustrated with pictures, diagrams, graphs and the like. Many are designed to accompany a given text, others supply material covering a field without reference to the particular texts which may have been used. Several hundred workbooks are available; thousands of school systems use them; all subjects and levels are covered from primary to college.

A distinction needs to be made here between "self-instruction bulletins" or "instructional booklets," or "study manuals," or individualized instruction materials such as the Winnetka organization for learning the fundamental skills and currently used workbooks which are chiefly concerned with supplementary drill. Instructional material is included in

many of these also. The first type is essentially a textbook for self-instruction by the pupil. The latter is designed to supplement a text or texts or to supply practice materials valuable in a given field. The first type of book is admirably discussed by Umstadtd.⁷ He presents a good score card, many points in which apply to the second type of book. The second type, the drill workbook, is our concern here.

Widespread use of these books is inevitable since they relieve the teacher of much effort, provide large amounts of drill material ready to hand. This releases time and also makes it easier to keep pupils occupied at their desks while others recite at the front. Widespread use and approval by pupils and teachers are not, however, valid evidence that the workbook is a valuable instrument. Previous pages have made clear the real dangers of isolated or non-meaningful drill, of drill ill-adapted to individual needs and differences. The workbook is in need of extremely careful appraisal. A large number of articles and a few critical analyses both pro and con have appeared in educational journals. The majority of these are distinctly naïve. Workbooks are said to be valuable because they "stimulate interest," "supply drill materials quickly," "provide for developing skill or vocabulary," "encourage pupil activity," "save time," "simplify the assignment," and "provide for home study." Workbooks could do everyone of these things and still be distinctly detrimental educational devices. Workbooks are condemned because they "contain too many trivial unrelated facts," "are poorly graded," "are formal and inflexible," "are used without discrimination by teachers," and "make for mechanical learning." Workbooks could be constructed to avoid all of these except overuse by the teachers. These are not inherent weaknesses in workbooks. Some arguments turn upon the value of the workbook for stimulating thinking, initiative, appreciation, and even creativity. Workbooks are to supply practice materials and if they do that well, there is little need to glamorize them as opportunities for thinking, creativity, and the like. These factors are better cared for elsewhere. Drill materials should provide for continued insight and increasing meaning as made clear earlier.

A critical and discriminatory view will not attempt to set up values and weaknesses in final or absolute terms but will set up desirable characteristics or criteria to be applied to specific workbooks. Brueckner⁸ has stated the steps to be taken to improve workbooks. The following statements paraphrase his summary. The desirable workbook will:

1. Be organized around a definite purpose which is meaningful to the learner and which is related to a socially desirable objective.
2. Make definite, adequate provision for individual differences in need, ability, and rate.

⁷ J. G. Umstadtd, *Secondary School Teaching* (Boston, Ginn and Co., 1937), Chap. 8.

⁸ Leo J. Brueckner, "The Improvement of Workbooks," *Curriculum Journal*, Vol. 6, pp. 41-44.

3. Make available to teachers proven methods of diagnosing strengths and weaknesses among pupils.

4. Include a considerable variety of developmental and remedial materials of demonstrated value which may be used in the light of the diagnostic analysis.

Brueckner points out that research is needed to determine more than we now know about preventing learning difficulties in the first place. Results of such research are being and will increasingly be incorporated into workbooks.

We need to be sure that drill materials contained in workbooks are actually and naturally derived from a meaningful unit, or are readily integrated with such a unit. The organization and sequence and use should be scrutinized in terms of the principles of drill given earlier. Sometimes brief explanations or brief reproductions from the original subject-matter unit are included in the workbook. Reference is made to real-life applications. The book itself should be of good construction, well printed, and properly illustrated. The use of formal materials should condemn the book. Overworked or routine-minded teachers will always make poor use of good workbooks but this cannot be attributed to the book.

DISCUSSION QUESTIONS

1. Why are habits formed in youth much harder to break than those acquired later?

2. It is commonly believed by many parents and teachers that children "will outgrow" certain bad habits or undesirable actions.

3. A fifth-grade teacher found her class growing poorer and poorer in spelling. She gave much practice, marked papers carefully, was generous with help to pupils after school, but improvement did not result.

4. A typical and widespread method of teaching language is to have the pupils learn rules and definitions, followed by exercises in making written applications.

Distinguish between situations in which this is likely to be true and those in which it is not.

What is the guidance for teaching?

What might be some of the causes of this situation?

What questions would you like to ask before advising her?

Assuming that you have answers to the questions you would ask, what advice might you give her?

Evaluate this procedure critically.

EXERCISES AND REPORTS

1. Report from observations any skilful derivation of materials for drill from a functional situation.

2. Report in detail any exceptionally good management of initial practice period for development of insight.

3. Report any cases of confusion between drill and review.

4. Report the reverse of 1 and 2 and also cases of rigidly enforced drill upon isolated skills or associations.

5. Report in critical summary the gist of half-a-dozen current articles on drill methods.

6. Report similarly current articles on workbooks and their use.
7. Individuals or small committees may evaluate a given workbook in their teaching field.
8. An individual student may report recent research studies dealing with repetition, practice, drill. These studies are extremely important at present and are usually found in psychology or in subjects such as reading, writing, arithmetic, spelling.

READINGS

General Discussions of Classroom Practice

- BOSSING, Nelson, *Teaching in Secondary Schools* (Boston, Houghton Mifflin Company, 1935, revised), Chapter on review is excellent. None on drill.
- BUTLER, Frank, *The Improvement of Teaching in Secondary Schools* (Chicago, University of Chicago Press, 1939). Chapter 15 to page 332 is excellent.
- FREDERICK, Robert W., RAGSDALE, Clarence E., and SALISBURY, Rachel, *Directing Learning* (D Appleton-Century Company, Inc., 1938). Chapter 10 and other references found in index.
- HOCKETT, John, and JACOBSEN, E. W., *Modern Practices in Elementary School* (Boston, Ginn and Company, 1938). A few brief but good references.
- HOPKINS, L. Thomas, *Interaction* (Boston, D. C. Heath and Company, 1941). Chapter 8 contains both psychological background and practical discussion. Very valuable.
- MACOMBER, F. G., *Guiding Child Development in the Elementary School* (New York, American Book Company, 1941), Chap. 8. Many good materials found scattered in other chapters.
- MORRISON, Henry C., *The Practice of Teaching in the Secondary School* (Chicago, University of Chicago Press, 1936, revised 1931), Chap. 26.
- SCHORLING, Raleigh, *Student Teaching* (New York, McGraw-Hill Book Company, Inc., 1940), pp. 178-184. Excellent brief summary.
- UMSTATTD, J. G., *Secondary School Teaching* (Boston, Ginn and Company, 1937), pp. 274-278. Also Chapter 8 on workbooks.

General Psychological Background

- BRUCE, W. F., and FREEMAN, F. S., *Development and Learning* (Boston, Houghton Mifflin Company, 1942), Chaps. 12-15.
- HARTMANN, George W., *Educational Psychology* (New York, D. Appleton-Century Company, Inc., 1941), pp. 320-4.
- JUDD, Charles H., *Education as the Cultivation of the Higher Mental Processes* (New York, The Macmillan Company, 1936). Good discussions in several chapters, not all in index.
- National Society for the Study of Education, *Forty-First Yearbook*, Part II, "The Psychology in Learning" (Bloomington, Ill., Public School Publishing Company, 1942). No index. Search Chapters 1-7 for discussions of drill and practice. Chapter 10 is devoted to habit and skill learning. Bibliographies good.
- WHEELER, Raymond H., and PERKINS, Francis T., *Principles of Mental Development* (New York, Thomas Y. Crowell Company, 1932). Use index.

17

The Measurement and Evaluation of Learning Outcomes

A preliminary discussion based upon students' experience with examinations should precede analysis of the text. The following questions serve as a basis.

1. Why are students given examinations from time to time? Make a list of several purposes.
2. Recall the student who passed an examination in agriculture after reading the textbook the night before. (Question 1, Chapter 2.)
 - a. What did that examination really test?
 - b. What did the examination supposedly test in general? specifically?
 - c. How should the functional outcomes of a course in agriculture be tested?
3. The traditional written examination in content subjects aims at everything in the hope of hitting something. Actually we should test directly and specifically for a number of designated outcomes.
 - a. What general types of outcomes may we test for?
 - b. List a number of specific illustrations within the general types. Use your major subject as source for these.
4. Make as long a list as possible of the definite weaknesses of traditional written examinations. Base this directly upon your own experience in high school and college. Can you suggest some improvements even now without further study of the problem?
Make a similar list of definite strong points you found in examinations given by careful instructors.
5. Try to state a few principles of guidance for the construction of examinations. Do not go beyond your personal experience as developed by the foregoing questions.
6. Describe any examinations you were given in high school or college which differed significantly from traditional examinations.

SECTION 1. AN INTRODUCTION TO DEFINITIONS AND PRINCIPLES

The problems involved in determining what the pupil has learned and how well he has learned it have been with us for centuries. These problems are acute currently, however, because of our rapidly increasing insight into the nature of the learning process, the nature of outcomes, the nature of individual differences, and other items.

Learning outcomes are affected by many agencies outside the school. The learning and behavior of any pupil is determined not alone by the

organized learning experiences within the school but by all other social experiences encountered since birth. Experiences within the community, particularly within the immediate neighborhood, in the home, with the church, with recreational facilities desirable and otherwise, with civil authorities, with printed materials, with business, and with many other agencies all participate in the understandings and attitudes developed by the learner. The efforts of many of these agencies are often undirected, very often uncoordinated. The effects, even from home and church in given instances, are often negative, unfortunately, and may even counteract the constructive efforts of the school. An excellent program of character development in the school, to cite but one common situation, may produce few desirable results because of much stronger unwholesome social and moral influences in the immediate environment. Definite investigations have shown, however, that the organized coordination of school and community efforts will produce highly desirable results.¹

The school must face the problem of evaluation courageously. Many current severe criticisms of the school relating particularly to pupil conduct but including many of the typical school learnings are unjustified. The school cannot possibly be held *wholly* responsible for shortcomings among children who are affected by strong influences within the community and over which the school has no control. Homes and churches must accept an important part of the blame, similarly as they receive a share of the credit for desirable results. Community leaders who determine policy concerning provision of recreational facilities, of police procedure, of decent housing, and many other items, all share in blame and credit. The school is likewise not wholly responsible for the admirable results, but that is beside the point for the moment.

Educators have no wish to shirk responsibility in this complex problem. They realize clearly that the ultimate objectives of the school are those qualities, abilities, and attitudes necessary for effective, desirable living on the adult level within an evolving democratic society. They realize further, that the immediate objectives of the school are the progressively developing levels of these basic qualities and abilities. The work of any given group of children will be determined by immediate objectives derived on the one hand from the needs of the learners, and related on the other hand to the socially desirable outcomes. The school exists to guide and stimulate desirable developments along directional goals. The effectiveness of the school program in meeting its responsibility can be determined only through definite efforts to measure or evaluate what is going on. The final valid evaluation of the effects of schooling can come only as the pupil meets social situations in real life, particularly after leaving school. The school, however, is the formal agency of schooling; it has the children under favorable conditions for

¹ One excellent reference of many available is Sheldon Glueck and Eleanor Glueck, *Preventing Crime: A Symposium* (New York, McGraw-Hill Book Co., 1936).

the study of progress and of results. The school must devise means for continuously evaluating pupil growth as it progresses. The primary consideration is to devise instruments and techniques which as nearly as possible approach lifelike situations. *Lifelike* here means like the life of immature but growing children, not the life of mature, organized society. Unable to secure final and conclusive evaluations, the school will endeavor to gather as much presumptive and symptomatic evidence of learning as possible. The problem of evaluation and the devising of instruments is clearly one of the most prominent and dynamic educational problems of the moment.

Valid evaluation is ever more difficult. A number of factors seriously complicate the problem and procedure of evaluation.

The scope of evaluation has been greatly expanded. Early emphasis upon testing fact and skill outcomes has been supplemented by attention to testing or evaluating the newer outcomes such as understandings, appreciations, attitudes, values, special abilities, skills, and other controls of conduct or personal-social-moral traits.

The outcomes to be evaluated are complex integrations of many items. This was analyzed in Chapter 2. Pupil behavior in any situation is controlled by a constellation of understandings, attitudes, abilities, and skills. The parts cannot be tested separately, nor would the results be valid if the arbitrary separations could be made. The "whole child" cannot be measured or evaluated as such, but sufficient samplings of behavior of different types, at different times, and under different conditions must be made as a basis for judgment. Many different types of instruments are necessary.

The outcomes to be evaluated are usually general and abstract, but pupil behavior is specific and concrete. Specific and objective outcomes are legitimate goals for both teaching and evaluating on lower levels of maturity. As maturity progresses we teach toward generalizations which will govern conduct when choice is called for. The initial skills and simple understandings can be measured and evaluated with reasonable ease. Evaluation is progressively more difficult with the higher levels of learning.

We constantly speak of evaluating such abstract items as the pupil's initiative, dependability, resourcefulness, coöperation, etc. Actually all we can do is observe specific behavior and *infer* that a pupil has initiative, is dependable, resourceful, coöperative. Check lists, rating scales, and behavior records are instruments designed to aid us in gathering data to validate our evaluational judgments.

An illustration will aid in clarifying this situation. A man returns a purse which contains a considerable sum of money and which he has found in the street. We then speak of the man (evaluate him) as *honest*. We easily fall into the error, if we are not careful, of regarding honesty as an actual characteristic of the man, similar in nature to blue eyes,

short stature, or short reaction time. No such actual entity exists. There is no such thing as *honesty*. Honesty is a name given to certain types of specific behavior which can be observed. The man's *action* was honest, not the man. We have fallen into the natural error induced by metonymic language of attributing honesty to the man and not to the action. This is not serious in ordinary intercourse since we all know what is meant. Hopeless confusion is induced, however, if we give the figurative language a literal interpretation. Honesty and all other abstract names for conduct (initiative, coöperation, etc.) are not mysterious personal attributes that can be defined, developed by teaching, and measured or evaluated as such. To teach for these or to try to test them is wholly absurd.

The learning outcomes which can be developed and evaluated would include, among several others, (a) a system of ideas concerning the nature of property, (b) understandings of the conventions of society regarding ownership and stealing, (c) appreciation of the attitudes of society toward certain types of conduct, (d) sufficient knowledge and development of judgment to distinguish between *meum* and *leum*, among lost property, discarded property, and property open to seizure by anyone, (e) an attitude of desiring to act in accord with the ideas of right, of meriting social approval, etc., within one's society. These items are all translatable into learning outcomes which may be tested or evaluated through the observation of behavior.

Evaluation on advanced levels of maturity is still further complicated by the fact that the generalizations, attitudes, and the like which govern conduct are not always completely or even widely generalized. An individual acts honestly in one field but not in another. Pupils who act co-operatively with some classmates, some teachers, and in certain situations, may remain indifferent or be actively non-coöperative with other persons and in different circumstances.

Evaluation of many important outcomes is therefore seriously complicated. Many desirable outcomes in the form of general understandings and attitudes can be judged only in the light of specific actions within given situations. The evaluation is an inference, a leap beyond the observable data.

The outcomes to be evaluated are difficult to state in unequivocal language. This has been indicated in part by the preceding points; outcomes are complex, often general and abstract. Careless or figurative use of words still further complicates the problem of definition. The language used must be definite enough to set up an outcome which may be tested or evaluated. A vague, indefinite outcome cannot be evaluated. This is a serious problem with the newer outcomes and with teachers of poor or ordinary training.

Modern evaluation is continuous and adjusted to the nature of the learner. Unlike traditional testing at stated periods, evaluation today must be continuous and flexible. Pupil growth and development are

continuous and there are demonstrable individual differences. Goals of learning are continuous directional progress goals. Fixed standards to be passed at stated times are pure absurdities in the light of modern knowledge about the nature and development of children. This complicates processes of evaluation since it calls for a teacher attitude very different from the traditional, for a far more subtle insight into learning processes and results, and for the construction of evaluation instruments and techniques to fit given situations.

Directional progress goals must be related eventually to relatively fixed standards. Movable and flexible standards of achievement, constantly adapted to levels of maturity and to individual differences are inevitable under modern knowledge. This has been adequately explained in previous chapters. Parents and teachers are seriously confused and oppose the modern theory and practice with the statement that after all children must meet the standards set by the world. Both views are correct but the parent and poorly trained teacher err in logic when they then apply fixed adult standards to the immature child. The standards for evaluation which are emergent and flexible move constantly upward with the maturing learner. The learner, progressing through a series of directional progress goals and standards, will see for himself and quite naturally the necessity for achieving socially desirable levels. Current social standards must eventually be taken into account. They themselves, however, are not fixed and arbitrary as many adults believe but are themselves subject to change as society changes. They are not fixed, arbitrary hurdles to be passed at stated intervals but merely the final stage of directional progress goals. *Final* does not here mean complete and done with, but merely the level to which a given ability can reach. Efforts to evaluate the learning of immature children of different abilities, interests, and rates of reaction in terms of fixed standards result in serious disturbances of the mental hygiene of the learners.

Modern evaluation is participatory. Testing for the older imposed and arbitrary standards was an easy matter. Modern evaluation demands the cooperative efforts of all educational workers, of test technicians, of the public, and of the pupils. Pupils not only participate in order to improve evaluation but to achieve desirable learning outcomes in this field. Pupils can learn to discriminate, to judge, and to evaluate all highly important life activities, only by discriminating, judging, and evaluating constantly. All this complicates the actual procedures of evaluation.

Objective measurement and subjective evaluation are both essential. An important distinction between certain types of outcome and hence between methods of determining achievement was thrown into sharp relief by a now famous incident at the Indianapolis meeting of the National Education Association in 1897. A paper was presented by Rice ²

² J. M. Rice, "The Futility of the Spelling Grind," *The Forum*, Vol. 22 (April and May, 1897), pp. 163, 409. See also proceedings of the N.E.A.

giving the results of spelling tests administered in a score of cities. There were no standard tests in those days, hence a list of words was compiled and presented to all pupils alike. The pupils were under different methods of instruction from city to city, studied different books, were under very different time allotments. Regardless of wide differences in instruction and time spent, the pupils from different cities made approximately the same average group scores. This experiment *tested* precisely the pupil's mastery of a given list of spelling words, and *evaluated* in general the effect of teaching methods, texts, and time allotments. Rice's proposal to evaluate both teaching and the pupil's achievements by measuring precisely what the pupil knew or could do was greeted with ridicule verging upon abuse. (Incidentally, it is interesting to note that seventeen years later the National Education Association devoted its annual convention and proceedings to just that topic—precise measurement of outcomes.) The discussion from the floor was vigorous and emotional, straying far afield from the problem of precise measurement in spelling and other similar learnings. A sentimentalist decrying the idea of measuring human reactions thundered at Rice, "How would you *measure*, sir, a mother's love for her baby?" Imperturbably and without hesitation, Rice replied, "I'd *estimate* a mother's love, sir, by observing whether or not the baby was fed regularly and with good food, whether or not the baby was attended to and bathed properly, whether it was put to sleep at the proper times or kept up while the mother went to a dance." This reply contained the clue to modern evaluation as distinguished from precise measurement. Understandings, attitudes, appreciations, values, and ideals cannot be measured precisely. We can, however, observe and note behavior and then judge whether or not such action is in accord with given understandings or attitudes. The observed and recorded objective acts are symptomatic and presumptive evidence of the possession of given ideals, beliefs, standards. Judgments based on observed behavior cannot be precise or final, but this type of evaluation is inescapable in evaluating human learning of the more important types. The difficulties in making this type of evaluation and the skills necessary to overcome the difficulties will be outlined in succeeding pages.

The term *measurement* usually refers to the use of objective tests or instruments of precision which yield quantitative data. These precise, quantitative data are direct measures of the pupil's achievement in fact and skill learnings or in rote mastery of subject matter.

The term *evaluation* usually refers to the use of behavior records, inventories, scales, or check lists which yield descriptive, qualitative data. These qualitative data form the basis for judgments about the pupil's acquisition of the more general, more subtle, and more important outcomes.

The distinction between measurement and evaluation is not accepted

by certain statisticians but is quite acceptable to classroom teachers, supervisors, and administrators.

Measurement developed more rapidly than evaluation. The turn of the century saw the beginnings of the movement away from traditional quizzes and essay-type examinations toward the more exact type of measurement such as the standard test, the check list, the rating scale, and home-made objective test.

The evaluation of the more complex outcomes did not become prominent until about 1930. We are at the moment in the midst of an important far-flung development of new methods and new instruments including inventories, interviews, problem-situation tests, anecdotal and other behavior records, diary records, analysis of creative products, and many others. The improvement of the essay-type test is a part of this movement.

Subjective evaluation necessary and respectable. The newer developments call for adequate understanding of the nature of objective and subjective evidence and judgment. The introduction of precise measurement into education brought with it, naturally, a glorification of "objective" methods and data. There was a distinct tendency to minimize and even to treat with contempt "subjective" methods and data. A common method of condemnation was to apply the word "subjective" as an epithet. Great care must be exercised just here. It is difficult to find a datum which is not both objective and subjective. All types of phenomena vary all the way from highly but not completely objective to highly but not completely subjective.

A further factor which influenced thinking is that the subjective judgments of the average citizen are notoriously absurd, particularly when uttered concerning technological problems, and in fields where the citizen is not at all informed. Subjective judgments made by trained and competent specialists using agreed-upon standards are very different. These judgments, though subjective, are not the capricious and personal opinions of the average citizen, but the critical judgments of experts controlled by such data as there are and by the canons of logic. These judgments are based upon, guarded by, and illuminated by, all the objective data which can be secured.

Overemphasis upon objectivity leads to emphasis upon narrow, limited, immediately measurable types of learning outcome to the neglect of more important non-precise outcomes. Subjective evaluations made by competent specialists are necessary, inescapable, and wholly respectable.

Overemphasis upon subjectivity without proper controls usually centers upon the use of a word which should be eliminated from educational vocabularies, namely "intangible." Teachers using this term usually assert that the "intangibles" cannot be measured and that to try to do so is destructive of "finer" values. This is merely immature and fuzzy

thinking; it is very often a rationalization and an excuse for ignorance or laziness. Inaction results in a field where action is sadly needed. The so-called intangibles are actually the vitally important non-precise outcomes stressed by modern education. To say that they cannot be *measured* is to befuddle the issue. They can and must be *evaluated*. They cannot be measured but they can be readily estimated, judged, evaluated. There would be no sense in seeking these valuable outcomes unless we could in some way determine pupil development in them.

Certain types of essay tests, scales, inventories, check lists can be used either for fairly precise measurement or as a basis for controlled subjective judgment. Care must be exercised, however, to avoid "frozen subjectivity," that is, data which seem to be clearly objective but which are fundamentally subjective. Superficial understanding of the instruments, of the nature of data and of the canons of logic, and of statistics leads into this error.

SECTION 2

GENERAL PROCEDURES IN MEASURING AND EVALUATING

Determine what is to be measured or evaluated. The purpose of any test or evaluational procedure is to determine how well the pupil has learned something. The "something" must be defined clearly first or evaluation is a waste of time. For instance, we may test a learner to determine whether or not he possesses a given, defined motor skill and to determine his level of facility in the use of the skill. We may test for study skills and habits or observe behavior relating to these items. We may test or observe for more complex mental skills involved in problem solving. The various major skills can be broken down into many subsidiary skills. For instance, computational speed and accuracy in arithmetic is more specifically speed and accuracy in addition, multiplication, subtraction, and division. These, in turn, can be broken down into many necessary sub-processes. Illustrations are available in special-methods texts, in teaching manuals which accompany textbook series, and in books on diagnosis. We may test for retention of subject matter or observe behavior to judge whether certain understandings or appreciations have been derived from experience involving the subject matter. We may test or observe for any of the scores of outcomes derivable from modern courses of study and units. A given teacher must set down in precise language the given understandings, values, appreciations, etc. which she expects the pupil to achieve before she can start to test or evaluate. For specific illustrations, the student must turn to the local collection of courses of study and units. Space is given here to two. The first illustration shows how general objectives are broken down into more specific measurable or evaluable objectives. The material also demonstrates admirably the fact that objectives are actually progress goals to

be achieved at different rates by different pupils. Reading, as a general objective, is first broken down into five developmental stages: ³

1. *The stage at which readiness for reading is attained* This stage usually comprises the pre-school years, the kindergarten, and often the early part of the first grade. The chief purpose of the guidance recommended is to provide the experiences and training that promote reading readiness. In addition, steps should be taken to overcome physical and emotional deficiencies that might interfere with progress.

2. *The initial stage in learning to read.* For pupils who advance normally, this stage usually occurs during the first grade. Among other attainments, pupils acquire keen interest in learning to read and a thoughtful reading attitude. They learn to engage in continuous meaningful reading, read simple, interesting material with keen interest and absorption in the content, and begin to read independently.

3. *The stage of rapid progress in fundamental reading attitudes and habits.* This stage of development occurs usually during the second and third grades. It is characterized by rapid growth in reading interests and by notable progress in accuracy of comprehension, depth of interpretation, independence in word recognition, fluency in oral reading, and increased speed of silent reading. By the end of this stage of development pupils should read silently more rapidly than orally, and should be able to read with reasonable ease, understanding, and pleasure both informational and literary materials such as are usually assigned early in the fourth grade. To do this efficiently, a grade score of 4.0 in silent reading should be attained.

4. *The stage at which experience is extended rapidly and increased power, efficiency, and excellence in reading are acquired.* The fourth stage of development occurs normally during grades four, five, and six and is characterized by wide reading that extends and enriches the experiences of the reader and broadens his vision. The chief purposes of the guidance provided are to promote greater power in comprehension and interpretation, greater efficiency in rate of reading and in reading for different purposes, improvement in the quality of oral reading, the extension of the pupil's interests, the elevation of reading tastes, and greater skill in the use of books and other printed sources of information. A grade score of 7.0 in silent reading is desirable by the end of this stage of development.

5. *The stage at which reading interests, habits, and tastes are refined.* The fifth stage of development occurs as a rule during the junior high-school, senior high-school, and junior-college periods. The chief purposes of guidance in reading during these years are to promote the further development and refinement of the attitudes and habits involved in various types of reading, to broaden interests and elevate tastes in reading, to develop increased efficiency in the use of books, libraries, and sources of information, and to secure a high level of efficiency in all study activities that involve reading.

These stages are further reduced to specific objectives which can be tested or observed in behavior. Stage III above is analyzed into the following: ⁴

³ *The Teaching of Reading*, Part I of the *Thirty-Sixth Yearbook* of the National Society for the Study of Education (Bloomington, Ill., Public School Publishing Co., 1937), pp. 76-77.

⁴ *Ibid.*, p. 101.

1. To provide a rich variety of reading experiences based on the world's greatest stories for children and on informational materials that challenge interest, including topics relating to various curricular fields
2. To stimulate keen interest in reading wholesome books and selections for pleasure and to establish the habit of reading independently
3. To secure rapid progress in the development of habits of intelligent interpretation when reading for a variety of purposes
4. To increase the speed with which passages are read silently within the limits of accurate comprehension. (This includes rapid increase in span and rate of recognition and a corresponding decrease in number and duration of eye-fixation per line in both oral and silent reading)
5. To provide for the development of desirable standards and habits involved in good oral reading
6. To promote continuous development in accuracy and independence in word recognition
7. To continue training in the skilful use of books and to familiarize pupils with the privileges and opportunities of libraries

Some of these objectives are directly measurable through the use of standard tests; others can only be inferred from observed behavior. To help the teacher to visualize more clearly the significance of these aims Gray also describes the characteristics a pupil should possess before he can be regarded as having completed the requirements of the period successfully.⁵ The characteristics listed for the end of Stage III are as follows:

1. They have established the habit of reading independently.
2. They interpret accurately the materials related to other curricular fields.
3. They seek reading materials that relate to activities in which they are interested.
4. They read more rapidly silently than orally.
5. They are able to read at sight materials suited to their stage of development.
6. They show increasing skill in combining contextual clues with visual and auditory elements in recognizing unfamiliar words.
7. They show increased ability to make the adjustments required when reading for different purposes.
8. They exhibit rapid progress in acquiring wholesome and diversified reading interests.

This analysis recognizes the fact that the ability to read is the result of a long process of development and that at each of the five levels there are definite objectives which should be adjusted to the growth process. The objectives are not stated by grade levels as is so frequently done in courses of study, but according to recognized stages of growth. It is known that pupils do not progress from stage to stage at the same rate in any field. This listing of objectives for successive levels of growth rather than by grades illustrates admirably the directional progress goals which have been referred to so often in this volume.

⁵ *Ibid.*, p. 107.

The second illustration is a fragment only from a method suggested by Wrightstone.⁶ The relation between outcomes to be tested or evaluated and the means of evaluation is also shown. The complete statement should be examined in the original.

Objective 1: To Understand and Practice Desirable Social Relationships

Definition of Objective

Since character is largely determined by the relationships of an individual to his fellows, the public school will continue to encourage the pupil's practice of the older virtues, namely, trustworthiness, reliability, obedience, kindness, courtesy, and loyalty.

More specifically, the goals to be sought in developing not only the pupil's ideals but also his conduct with his fellows are:

- A. Respect for authority
- B. Leadership activities
- C. Self-initiated activities
- D. Respect for the rights and contributions of others
- E. Cooperation (team spirit)
- F. An appreciation of the interdependence of all people
- G. An interest in civic functions and participation for community betterment

Suggested Approaches to Measurement

The measurement of such specific relationships or factors as respect for others, leadership, initiative, and co-operation may be attempted by means of observational techniques and cumulative observer-diary records such as those described by J. W. Wrightstone, "Constructing an Observational Technic," *Teachers College Record*, Vol. 37 (October, 1935), pp. 1-9.

Such aims as F. and G. in the left-hand column presumably might be measured by specially devised pencil and paper tests, supplemented by anecdotal records of the kind suggested in J. A. Randall, "The Anecdotal Behavior Journal," *Progressive Education*, Vol. 13 (January, 1936), pp. 21-26.

Objective 5: To Gain Command of the Common Integrating Knowledges and Skills

Definition of Objective

While the subordinate elements of this objective are classified under the general heading of "abilities," the attainment of each one assumes the development of an ideal concerning it and an appreciation of its value.

Suggested Approaches to Measurement

⁶ J. Wayne Wrightstone, "Measuring the Attainment of Newer Educational Objectives," *Appraising the Elementary School Program, Sixteenth Yearbook of the Department of Elementary School Principals* (Washington, D. C., 1937), pp. 495-501.

Another excellent illustration of the relationship between outcomes and instruments of evaluation will be found in Edgar B. Wesley, *Teaching the Social Studies* (Boston, D. C. Heath and Co., 1937), pp. 595-596. This outline also available in *Supervision* (New York, D. Appleton-Century Co., 1938), by A. S. Barr, William H. Burton, and Leo J. Brueckner, pages 331-332.

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|---|---|
| <p>A. The ability:</p> <ol style="list-style-type: none"> 1. To speak easily with freedom from gross errors 2. To organize and present ideas clearly and consecutively in oral language 3. To listen attentively to the oral expression of others 4. To organize and express thoughts in written form 5. To use good form, order, and arrangement: margins, spacing, paragraphing, capitalization, punctuation, abbreviation, syllabication 6. To spell correctly one's vocabulary 7. To write with ease, legibility, and speed 8. To understand and use title page, index, table of contents, and appendix of a book | <p>Rating scales on habits and qualities of speech, constructed by a teachers' committee</p> <p>Rating of a stenographic record of several samples of the pupil's oral expression</p> <p>Records of teacher observation related to the attention of the pupil, and subsequent relevant questions or comments</p> <p>Rating samples of pupil's work by means of a qualitative scale (Hillegas, Trabue, Hudelson, etc.)⁷</p> <p>Pencil and paper test, or rating of samples of pupil's work upon a basis of error count per 100 words</p> <p>Spelling scale (Morrison-McCall, etc.)⁸</p> <p>Handwriting scales (Thorndike, etc.)⁹</p> <p>Standardized achievement test, such as the Iowa Every-Pupil Tests of Basic Skills (Test B)¹⁰</p> |
|---|---|

The *first* step then is clear definition of what is to be measured or evaluated. Numerous experimental studies cited in Chapter 2 demonstrate conclusively that attainment by the learner of one objective does not insure the achievement of any others, even those more or less related to each other. The only way to be sure of pupil achievement and growth is to test carefully and evaluate all outcomes.

Define the objectives in terms of pupil behavior. The *second* step is the description of the learning outcome in terms of specific pupil behavior which is indicative of the possession of that outcome. The compilation of lists of behavior items or the preparation of general descriptions of evidence which may be taken as proof of learning is one of the most valuable training devices for teachers, particularly for those accustomed to testing through requiring repetition of subject matter. Many traditional teachers have no clear idea of the actual results of their teaching or of the valid evidence that the pupils have learned.

Confusion among teachers regarding the nature of outcomes and their evaluation is widely observable. For instance, many teachers state

⁷ Published by the Bureau of Publications, Teachers College, Columbia University, New York.

⁸ Published by the Bureau of Publication, Teachers College, Columbia University, New York.

⁹ Published by the World Book Co., Yonkers-on-Hudson, N. Y.

¹⁰ Published by the Bureau of Educational Research and Service, State University of Iowa, Iowa City, Iowa.

they are testing appreciation of literature but usually they test merely ability to retain certain facts about certain literary productions and their authors. The majority of music appreciation tests are not tests of appreciation at all but tests of memory. Many of the facts called for in this type of test are relatively unimportant for any purpose. Learning outcomes lumped together under the blanket term "appreciation of literature" should be specifically defined as given understanding, appreciations, and attitudes. Typical tests with objective items or with improved essay questions are not appropriate here. Lists of specific pupil behavior regarded as valid indications of appreciational development should be compiled. Check lists should be made up on the basis of the listed items. Anecdotal and diary records should be made based on uncontrolled observations. Exhibits of pupil work may be made. The situation outlined for appreciation holds also for other complex outcomes, particularly those in the sciences and the social studies.

Select or design an instrument: collect test situations appropriate to the outcome. Clear understanding of the evidences of learning enables the teacher to choose a commercially available instrument or to set about the construction of a new one. The latter is the preferable course in modern learning situations.

The better standard tests, check lists, scales, and behavior guides are based upon and include specific pupil behaviors which are truly indicative of learning. Many carelessly constructed instruments are not valid because either they do not contain items truly indicative of the learning to be tested, or they contain items indicative of other learnings instead. Many a so-called reading test turns out to be more accurately a test of general intelligence and ingenuity. Intelligence tests are often tests of reading and of certain academic skills. Arithmetic tests often contain language so difficult that the pupil never reaches the arithmetic. The pupil "fails" the arithmetic but actually failed the reading. The test did not test his arithmetic behavior at all.

New instruments constructed by the teacher herself or with the cooperation of the pupils, or by the pupils with some guidance from the teacher will be based squarely on the compiled lists of pupil behaviors. These testing devices may be of any type, home-made objective tests, improved essay tests, or one of several types of observational guides to behavior.

Test situations and problems which are found to be indicative of the development of certain generalized understandings or habits may be collected and modified for repeated use.

Whatever the outcome—memorized fact, simple or complex motor skill, any of the various complex mental skills, study habits, specific understandings, designated appreciations, any of the scores of personal-social-moral traits—the necessary *third* step is the selection or construction of an instrument based squarely upon the requirements of the specified

outcome. The continuous construction of evaluational devices for given learning situations is a feature of modern instruction.

Record the results of testing or evaluating. Results have been recorded for generations in the form of teachers' marks. Properly defined and used by competent teachers, marks are useful records of achievement.¹¹ Marks used without adequate definition of what they represent, used carelessly by indifferent teachers, become mere administrative stereotypes. Marks may actually have little or no relation to the learning achievements of the pupil, may even conceal the actual situation, may actually interfere with learning.

Scores from standard tests, percentile ranks, profile graphs and the like often appear in pupil records. These too may be valuable or they may be effective obstacles to understanding of the actual facts about pupil achievement.

Modern records include in addition to all these, reports of observed pupil behavior either in anecdotal form or based upon a check list, scale, or other trait-rating device. The instruments themselves are often parts of the record. Exhibits of pupil work such as compositions, book reports, creative products of any type, types of questions asked, problems solved, contributions made to group work, are increasingly found in pupil records. The form of record used depends upon the nature of the behavior being evaluated. In any event the modern record is far more extensive and detailed than the meager, formal record of the traditional school.¹²

The record, whatever its form, should include accurate descriptions of all reactions which may be significant for the later evaluation. The larger the number of significant records, the more objectively and validly the behavior can be evaluated. A cumulative record of previous behavior and other information about the learner is an inescapable adjunct to good modern teaching. Extensive records are a necessity but devices should be used to keep the time and effort expended within practical limits.

Evaluate the evidence and make a judgment concerning pupil achievement. Traditional teachers often regard the *record* as the *evaluation*. This is a natural mistake owing to weaknesses in current teacher-training. The record shows that a pupil received a mark of "B," or that he behaved in described manner. Now what does a "B" mean? The record shows only what the pupil did. The evaluation is a statement showing the relation of that record to the directional progress goals of education in the light of the pupil's ability and background. Evaluational judgments are necessary even with so-called objective tests. The evaluation itself should become part of the pupil's record.

¹¹ See Chapter 19 for discussion of principles of marking.

¹² See Chapter 20 for description of cumulative record cards and types of information included.

Evaluations must take into account the pupil's individual characteristics, his background, and the immediate environmental factors. Evidence and argument have been presented continuously throughout this volume showing the futility of evaluating pupil growth in terms of arbitrary fixed standards. Large volumes of evidence supporting the same conclusion are not even mentioned in this volume but are available in the fields of guidance and counseling, prevention of delinquency, social work, mental hygiene, and psychiatry. Extensive data concerning the individual pupil, his background, and the community within which learning takes place are basic to evaluation. Chapters 20 and 21 are devoted to these basic items. Teachers who evaluate pupil's learning achievements or general behavior without regard for individuality and background are so dangerous to the growth and to the mental hygiene of the learners that it is doubtful if such teachers should be permitted to continue in the classroom.

Evaluations should be followed by diagnosis of failures and by remedial procedures. The modern school does not stop with telling a pupil he has passed or failed, but attempts to find reasons for poor achievement and to aid the pupil to achieve up to the limits of his capacity. This problem is too important to discuss briefly, hence Chapter 18 is devoted to it alone.

SECTION 3

THE TYPES OF INSTRUMENTS AVAILABLE

The traditional types of final examinations, tests, and quizzes are not only hopelessly inadequate; they are often definitely detrimental to learning. The more recently developed standard test has definite advantages and equally definite limitations. A large number of wholly new instruments for testing and evaluating are currently emerging.

The average teacher makes excessive use of the old-type essay examination with vague, indefinite questions which do not adequately sample the learning, and of standard tests. Teachers are often surprised to learn that there are available in addition at least a dozen types of instruments with numerous specific illustrations. The modern teacher uses all these and with the participation of her pupils develops still others fitted to the specific needs of the situation. The following outline gives the major general classes of instruments available or constructible by the teacher and pupils.

General Types of Evaluational Instruments

1. Traditional essay-type examination with general questions
2. Improved essay-type examinations with definite questions designed to sample adequately the learning outcomes, and eventually refined through scrutiny of results secured through repeated use
3. Standard tests
 - a. Intelligence tests

- b. Achievement tests
- c. Aptitude tests
- 4. Home-made objective tests (sixteen types with approximately thirty forms)
- 5. Problem-situation tests
 - a. Direct
 - (1). Experiment to be performed
 - (2). Life situation to be met (actual)
 - b. Indirect
 - (1). Improved essay examination
 - (2). Objective tests requiring judgment
 - (3). Life situation to be met (described)
- 6. Behavior records
 - a. Controlled situations
 - (1). Check lists, rating scales, score cards, codes
 - Personality traits
 - Behavior
 - Attitudes, opinions, interests, etc.
 - (2). Guess-who tests
 - (3). Time studies of given activities
 - (4). Camera for still or motion pictures
 - b. Uncontrolled situations
 - (1). Diary or log, with or without guiding outline
 - (2). Anecdotal record
 - (3). Camera for still or motion pictures
- 7. Inventories and questionnaires
- 8. Interviews
- 9. Analysis of creative products
- 10. Reports, exhibits, a play, a debate, or any other student construction or performance
- 11. Case studies

Detailed analysis of the various instruments is properly a function of a separate course in tests and measurements. Treatment here will be confined to those instruments coming more commonly into everyday use by classroom teachers. Many courses in tests, unfortunately, do not discuss all these instruments.

Inventories, questionnaires, and interview techniques are presented in Chapters 18 and 20. Case studies often made by teachers usually require the participation of a number of specialists available only in larger school systems. Detailed outlines are omitted here.

The improvement of the essay-type question and examination. The traditional essay examination has been used for centuries to test memory, understandings, and various mental skills involving problem-solving. Memory is better tested by standard tests or informal objective tests. Teachers have been notoriously incompetent in the construction of essay examinations aimed at testing pupil achievement of complex understandings and problem-solving skills. A few investigations show, however, that the essay examination can be improved definitely. This type of examination in the hands of trained teachers has distinct values for testing understandings and mental skills on the upper levels, particularly

in high school and college. The general principles covering the construction and wording of questions set forth in Chapter 14 will apply here. In addition, certain more specific suggestions can be made.

1. *Construct questions specifically designed to test a given learning product.* The use of given identifiable understandings or mental processes must be the object of the questions. The emphasis of modern unit construction upon the statement of objectives is a definite aid to teachers here. The entire emphasis of this volume has been upon the proper differentiation and definition of learning outcomes. The questions must be directed squarely at the announced outcomes.

2. *Construct questions that can be solved only through exercise of the designated learning product or process, and not by another which might be substituted, or by vague general discussion.* Ingenuity and ability are necessary here; the dullard cannot succeed. If glittering generalization may be permitted here, questions should not be directed at information but at the solution of situations which necessitate application of the knowledge, be it fact or understanding. Questions should assume possession of knowledge developed through learning experiences and call for application to new situations.

3. *Sample the product adequately; cover adequately the functioning of the process being tested.* A list should be made of the major understandings to be tested, or parts thereof, and of mental skills to be exercised. This procedure is almost universally neglected by teachers; consequently, the content of the course is not sufficiently or fairly sampled. A teacher is often overinfluenced by the last part of the course, or by a part of the course on which the students did unusually good or unusually poor work. Teachers often trust to memory or to last-minute inspiration and hence construct a list of questions giving fragmentary and lopsided sampling of the pupils' learning.

4. *Construct questions dealing with equally valuable items, or assign differing values to the several questions.* Questions should ordinarily refer to basic, major items; but minor and supporting understandings and skills may also be the object of testing. Questions which deal with complex, important items should be distinguished from questions calling for simpler knowledge and skill. Weighting test exercises seems to make little difference in final relative ranking where relative rating is important. Distinguishing between major and minor questions is, however, a valuable pedagogical device in directing discrimination by the learner.

5. *Make questions clear and definite as to import and meaning.* Questions calling for reasons, "why" something happens, for "what would happen if," for critical comparisons, for evaluations, for the organization of scattered materials are desirable. The vague, indefinite questions beginning "discuss," "tell all you know," "what can you say," "what about" are definitely undesirable. Questions should not be vague, involved, or include much explanatory or related materials. Many traditional essay questions were called "shot-gun" questions since they covered many items hoping to hit something important.

6. *Set up standards as definitely as possible for evaluating the answers.* Teachers should decide just what specifically constitutes a good answer. The standards set up should be equally apparent to other readers than the teachers. A good device is to list the ideas that should appear in the answer, to list the processes which should be utilized and the evidences showing that these processes did function. Some teachers write out a desirable set of answers to essay examinations which they propose to give. Many questions included in essay examinations in high school and college would never appear if the teachers proposing them had to answer them before presentation to a class.

Students in high school and college brought up on traditional teaching and memory testing often object strenuously to competent testing for understandings and mental skills. It is an interesting experience to observe these students and also experienced teachers in advanced courses attempt to answer interpretive or analytic thought questions on the basis of time-honored stereotypes. Instead of entering upon the critical or analytic processes clearly called for which will result in the development of an original answer based upon materials in the text or developed in many learning experiences, these students attempt to satisfy the question through reproduction of subject matter. The clear and direct implications of the question are either not seen or are deliberately avoided, since they call for abilities the student has not developed. Refuge is taken in the familiar process of citing remembered material. Naïvely and naturally they insist upon presenting a lengthy and detailed outline of all facts, illustrations, materials read, referred to, or even mentioned during the course. The materials may not all of them even be related very closely to the question. Students from certain traditional liberal arts colleges are often openly resentful when analysis, discrimination, critical evaluation are demanded in examinations. Students who actually understand the new viewpoint are, on the contrary, unable to fall back into the traditional type of answer. They are keenly aware that to do so is to give evidence either of ignorance or of stupidity.

A valuable testing procedure of the essay type is to ask for the written presentation of a logically organized and supported statement. The assignment may be the organization of material from several sources into a coherent sequence leading to a conclusion; it may be the reproduction and criticism of a difficult involved argument presented by one source; or it may be the critical reaction to a number of sources. Standards for marking should be clearly explained, and classes should be given enough of these papers so that reaction to them becomes natural and typical. Marking should be based chiefly upon two things, first, evidence of understanding, and second, evidences of ability to select, organize, criticize, and present material in a coherent manner. The latter is obviously an adaptation or response other than the one primarily tested, but both are valuable and the two are functionally related. Provided that all understand that both items are to be tested, there is no unfairness. Preferably this should be assigned for completion outside of class.

The true-false, best-answer, and similar types of objective tests can also be used to test understanding, judgment and other mental skills. To test understanding or judgment, a situation must be set up in which the student may choose among the right, the nearly right, and the wrong, and in which he cannot select the right answer unless he truly understands the full implication of what he has learned. An even better form is to give (in the multiple choice list) two definitely wrong answers, two

that are true in general or in part, and one which is clearly the best answer to any one who has really acquired the desired learning response. Furthermore, the student should be asked to mark, not only the right answer but, contrary to common practice, to designate also the wrong answers.

Examinations and tests are inescapable elements in evaluation. The discussion has proceeded upon the assumption that examinations are necessary instruments of evaluation. Certain educationists, however, would minimize if not abolish examinations of all kinds. The objections range all the way from criticisms of weakness in examination procedures to purely sentimental nonsense and defense reactions. It is true, of course, that the newer instruments of evaluation do yield better evidence of certain learning outcomes formerly checked by examinations.

One group of objections refers to difficulties of securing reliability and validity, to the time and effort necessary for construction, to difficulties of marking. These are not reasons for abolishing examinations but for improving them. Time and effort must be used to construct examinations carefully; results must be interpreted in some detail rather than merely marked. Examinations have been shown to be valuable instruments under given conditions. Difficult as the task is, valid and reliable examinations must be constructed and the results interpreted.

Sentimentalists object to all types of examinations and evaluations on the ground that pupils are subject to serious strain which is injurious to emotional stability and even to physical health. Definite ill effects upon health traceable to preparation for and undergoing examinations have actually been shown by research studies. The traditional memory-type examination covering an impossible amount of ground is, however, the cause. Cramming and last-minute "boning" for stupidly organized examinations is unquestionably a strain upon mind and body—not to mention the soul! The student himself was often at fault, though the instructor was the chief offender. Excessive use of memory examinations by the instructor, and "cramming" by the student are evidences of incompetent teaching. The proper definition of the learning products, the organization of teaching around these outcomes and in terms of the actual learning process will progressively eliminate this situation. Under good teaching-learning conditions, examinations appear in the process as naturally as supervised study, library work, group discussion or what not. If the instructor knows how to teach and the student has really been learning as he has gone along, examinations cannot unduly upset anyone.

Granted desirable educational conditions, the statement that examinations injure health is wholly silly. Parents who allow children to stay up till all hours, allow them to eat irregularly and to violate many simple rules of hygienic living, allow them to disturb the entire organism through injudicious emotional stress induced by radio and moving pic

tures, are displaying genuine intellectual immaturity when they assert that a forty-five-minute written examination is dangerous to health. College and high-school students who can dance until dawn, practice night after night for a class play, or go through the grueling training for athletic contests are talking pure nonsense when they assert that a two-hour examination completely exhausts them.

A related objection is raised by many students, even including scores of experienced teachers in advanced courses: "I get so flustered and excited that I wear myself out; I cannot think. I do not do nearly so well on examinations as I really can." This again can be traced to, and partly excused by, experience with the cram-type memory test. The basic point, however, is that the individual lacks the poise, balance, and control necessary to meet tests. This is a form of intellectual and emotional immaturity. The ability to meet simple tests or crises in school and out is itself a legitimate learning outcome and *any normal person can acquire it*. That an examination upsets one is a confession of definite weakness and instability and not a reason for abolishing examinations. In fact, a little excitement over an examination, if it does not become tenseness, is distinctly beneficial.

A related objection is to the effect that examinations are not typical of life. The direct opposite is true. Life constantly tests one's abilities, skills, and understandings. Hardly a day goes by, except for the routine worker, in which situations exactly comparable to tests do not arise. Furthermore, life is much harsher than the school in setting examinations. An individual may receive a severe test of his uttermost power and ability late in the afternoon of a hard day. He cannot avoid it. The demands of his chief, or of the business in which he is engaged, force him to display his ability in solving a technical problem or in handling a situation which has arisen. He may have been ill the day before, he may have had a severe headache all day, but if he is on the job the demand is presented, and he cannot avoid the test. The school at least will excuse him if ill, or will arrange for a make-up or second trial if legitimate excuse is presented.

A fair analysis of the various objections to examinations seems to justify the conclusion that there are no fundamental arguments against them, but that there is ample ground for complaint against poorly devised tests and unorganized, inflexible examination procedures. This is readily granted.

Some objections to examinations are not honest, but are motivated by a desire for peace and harmony undisturbed by arguments with parents and pupils over failures, low marks, non-promotions, etc. A few individuals, perhaps, merely wish to avoid the work involved.

The uses of, reasons for, and real value in examinations are apparent to any fair-minded and competent analyst of the learning situation. Testing is as necessary in teaching as accounting in business, evidence

in a court, or as proof of efficacy after medicine has been administered. In general, testing is necessary

1. To discover whether the teaching has been effective, or better, perhaps, to see if the pupil learned
2. To diagnose group and pupil difficulties and shortcomings in learning so that teaching may be redirected
3. To supply data (together with other procedures) for routine administrative purposes
 - a. School records, reports to parents
 - b. Grouping pupils for instruction

The use of standard tests. Students and teachers ordinarily will have had a course in "tests and measurements." The construction and use of tests, the principles of objectivity, reliability, and validity, the necessary elementary statistics are included there. The giving, scoring, and interpretation of standard tests, together with analysis of advantages and limitations, are also part of the specialized course. This volume is therefore not concerned with these details. The following brief paragraphs are merely to indicate the wide range of evaluational instruments available for certain specified purposes.

Educational achievement tests. These are available in every subject in curriculum and for all grade levels. *Rate tests* measure the amount of work of given level of difficulty which a pupil can do within a time limit. *Power tests* measure the level of difficulty which a pupil can surmount. *Quality scales* measure the merit of specimens (composition, handwriting, sewing) in terms of pre-determined scale of value. *Area tests* measure a wide variety of items within a given area. *Diagnostic, prognostic, and survey tests* are self-explanatory.

Intelligence tests. Individual and group tests are available which attempt to measure the pupil's general mental ability, more probably his general academic ability. Verbal and non-verbal forms are available, the latter for very young children, non-English speaking persons, and illiterates. Tests suited to all school and age levels are available.

Special aptitude tests. Tests of this type are not yet too well validated but cautiously interpreted have value. Many are available, the better known ones being for clerical, mechanical, and musical aptitude. Others are for engineering, nursing, salesmanship, etc. Aptitude testing is usually the subject of an advanced course in teacher-training.

The construction and use of home-made objective tests. Teacher-made tests of information, motor skill, and sometimes of judgment and understanding have been used increasingly. These tests are similar to standard tests in form and objectivity but being local and specific do not have standard norms. Common forms are the true-false, multiple-response, best-answer, completion, matching, and correction of errors. Approximately fifteen different types with some twenty-five sub-types are available.

These tests are not easy to construct, though the average teacher often thinks they are because of their seeming simplicity. Definite training is necessary and should be included in courses on tests and measurements. For students lacking this training summaries of guidance are readily available.¹⁸

Problem-situation tests. Critical thinking and aspects thereof have been tested by a variety of devices. The best-answer and multiple-choice type of objective test when properly constructed will test judgment and other mental skills and may afford a basis for evaluating the possession of given understandings and attitudes. Skilfully constructed essay-type questions are even better. Anecdotal records can be used here. The most recent addition to the list is the problem-situation test. It is one of the most important current contributions to educational procedure. A problem-situation test, briefly, sets a situation before the student and asks that he figure his way out. The situation is described in differing degrees of detail, varying amounts of information are supplied, definite questions may or may not be asked. The situation is a new one, the answer to which has not previously been studied. The analysis of unknowns in advanced chemistry examinations is an illustration of this technique which has been in use for a long time. The physical and biological sciences have been developing the procedure and more recently it has appeared in the social sciences. It is one of the most effective devices for deriving evidence concerning degree of understanding, facility in certain mental skills, use of principles.

These tests, more specifically, measure first and in general the ability to apply scientific principles and canons of logic to new situations. They may measure second and more minutely any one factor or combination of factors: the ability to draw a correct hypothesis from the data given, to reconstruct the hypothesis in the light of further data, to verify the hypotheses, to suspend judgment, to detect contradictions in arguments, to classify data properly, to interpret data closely and to avoid injecting extraneous considerations.

Tests of this type cannot be constructed without considerable training in the technique. Good discussions of the procedure with illustrations are all too rare but do appear in a few texts on the teaching of

¹⁸ A. S. Barr, William H. Burton, and Leo J. Brueckner, *Supervision* (D. Appleton Century Co., 1938), pp. 241-243. An outline of rules constructed by Edgar Wesley, University of Minnesota.

J. Murray Lee, *A Guide to Measurement in Secondary Schools* (New York, D. Appleton-Century Co., 1936), pp. 372-374.

William H. Burton, "A Contribution to the Technique of Constructing Best Answer Tests," *Elementary School Journal*, Vol. 25 (June, 1925), pp. 762-770.

I. H. Brinkmeier, and G. M. Ruch, "Minor Studies in Objective Examination Method—III. Specific Determiners in True and False Statements," *Journal of Educational Research*, Vol. 22 (September, 1930), pp. 110-118.

C. C. Weidemann, *How to Construct the True-False Examinations*, Contributions to Education, No. 225 (New York, Teachers College, Bureau of Publications, 1926).

See also many of the recent volumes on tests and measurements.

special subjects. The necessary extended training should be included in courses in special method, particularly in the physical, biological, and social sciences. Two illustrations only are included here. Students who are not receiving adequate training in the special-methods courses may pursue the matter further in the few references available.¹⁴

The first illustration, in outline form only, is a test of the student's ability to draw a correct hypothesis and his ability to check varying hypotheses against given facts. The second one, also in outline form, is similar but more complicated.

TEST A (Skeleton Form)

A man enters a room walks over to the table, and turns the switch on a table lamp. The lamp does not light.

He observes the following facts:

1. The lamp shade and frame are crumpled as if from a fall
2. The light switch made the usual characteristic snap when it was turned.
3. The lights in his neighbor's home are burning.
4. As he turned the switch on the table lamp all other lights in the room went out.
5. An electrical storm was raging outside.
6. Often the current in a district goes off during an electrical storm
7. The neighbor's lights continue to burn after he turned the switch on the table lamp.

He considers the following hypothesis as to why the table lamp did not light:

Hypotheses	I	II	III	IV
A. The bulb is burned out				
B. The two wires in the cord are short-circuited				
C. The lamp switch is out of order				
D. The power is off in the district				
E. The electrical storm has put out all lights in the house . .	*			

In Column I opposite the list of hypotheses place the number (e.g., 1, 2, 3, etc) of all statements which strengthen each hypothesis.

In Column II mark similarly all hypotheses with number of those statements which weaken the hypothesis.

In Column III mark similarly all hypotheses with the number of the statements which completely eliminate the hypothesis.

In Column IV check the hypothesis which you have determined as the most valid.

TEST B (Skeleton Form)

One evening a boy entered the bathroom of his home and turned on the cold water faucet of the lavatory. He found that the water merely trickled from the pipe. Usually when the faucet was turned on there was a copious flow of water.

¹⁴ E. H. Hart, "Measuring Critical Thinking in a Science Course," *California Journal of Secondary Education*, Vol. 14 (October, 1939), pp. 334-338.

See also excellent illustrations in: Edward A. Krug, "A Coöperative Approach to Evaluation," *loc. cit.*, pp. 346-352.

Louis Rath, "Techniques for Test Construction," *Educational Research Bulletin*, Vol. 17 (April 13, 1938), pp. 90 ff.

INSTRUCTIONS: Read the following four possible explanations for the lack of flow of water from the faucet and, before reading the statements of facts and observations listed below, place in the blank space just under the list of hypotheses the letter (either A, B, C, or D) of the hypothesis which you would select without further evidence.

Hypotheses	I	II	III	IV
A. His father had failed to open fully the valve on the house-main (water line) when he had used it earlier in the day				
B. The pressure on the street main was low				
C. There was gravel clogging the cold water faucet of the lavatory				
D. The main line to the house from the street was leaking				
First hypothesis chosen				

INSTRUCTIONS: After having studied the following statements, place a check mark in Column I to the right of the hypothesis which you would then choose as the most valid.

In Column II opposite the list of hypotheses, place the numbers (e.g., 1, 2, 3, etc.) of all statements which strengthen each hypothesis.

In Column III mark similarly all hypotheses with the number of those statements which weaken each hypothesis.

In Column IV mark similarly all hypotheses which are completely eliminated by certain statements.

Statements of Facts and Observations

1. His father had turned the house main off in order to put a new washer on the kitchen faucet.
2. There was a great amount of fine gravel in the ditch in which the service crew had repaired the broken main.
3. The flow from the hot water line in the kitchen also has been very small since early afternoon.
4. The service crew had repaired the broken line under water.
5. The water flowed freely and with the usual pressure from the garden hose with which he had watered the roses late in the afternoon.
6. The sprinkler system in the lawn is working just as well as usual.

Behavior records. Many outcomes of learning cannot be measured objectively. Other types of pencil-and-paper tests are also inadequate. With the problem-situation test we move toward a technique for observing pupil behavior in situations approximating real life. Short of real life, however, there is no known method of determining just how an individual will actually respond in the varying social situations arising outside school. All we can do is to record pupil behavior under known circumstances and attempt to ensure carryover to life. Diagnosis, planning educational programs and teaching procedures, and the evaluation of results are all aided by records of observed behavior. For instance, a pupil's study habits can be described readily by observing him while he is at work on assigned or self-initiated tasks. The character and extent of a pupil's current reading and the improvement of that reading owing in part to instruction can be determined through analysis of voluntary book

reports, library records, and the like. Evidences of appreciation are indicated when pupils hum or sing tunes they have learned in class; when they note of their own accord a tasteful color arrangement; when they begin to reject cheap prints for better pictures; when they begin to discriminate between poor books and better ones. Corrections of oral and written English can be evaluated satisfactorily by recording errors, correct constructions, self-corrections as noted in uncontrolled situations. Understandings and attitudes relating to social behavior can be evaluated by noting how pupils conduct themselves in situations calling for judgment and discrimination. The members of a certain home room were noted to be avoiding participation in disorder when in other rooms for recitation. They studied or went about their work quietly when a teacher left the room and while others made mischief. A refugee child fresh from repressive schools in her home country began in her American school to create considerable disorder immediately the teacher left the room. In a few minutes she noted with astonishment that no other children had joined her in disarranging things, in drawing cartoons on the board, or in generally acting in an immature manner. A boy said to her very courteously, "We do not do things like that in this school." This was a friendly statement of fact and in no sense a supercilious or goody-goody attitude. These children possessed good work habits, a genuine respect for the school and the teachers, understandings of the necessity for order while working, a liking for mature behavior, and an attitude of desiring to act in accord with the sensible social conventions of group life. Their observed behavior is the evidence upon which these estimates are soundly based.

Behavior records of various types have been emerging rapidly in the past few years. Some of them record behavior in controlled situations; others record behavior as it occurs in ordinary, everyday uncontrolled situations within and without the school.

Behavior records for controlled situations. The first steps away from evaluating in terms of marks for academic achievement took the form of rating cards for various personal traits. These progressed, as the samples will show, from simple lists of general traits to be marked like the rest of the report with a number or letter, to lists of the traits arranged in levels of proficiency, then to lists of traits which are further identified through brief descriptions of the behavior indicative of each trait.

Check lists or rating scales for personal-social-moral traits and conduct based thereon. The first type, many of which are still in use, consisted of simple listings of highly generalized traits to be marked in general terms. The fragment from the Cliffside Park, New Jersey, high-school record illustrates this.

The scaling of these traits by levels may be illustrated by an extract from the Ironwood, Michigan, high-school rating of personal qualities.

Traits	1st Yr			2nd Yr			3rd Yr		
Use 1, 2, 3, etc.	H	L	A	H	L	A	H	L	A
Accuracy									
Cooperation									
Industry									
Leadership									
Per Appear									
Reliability									
Punctuality									
School Spirit									
Intell. Int.									

LIST RECORD OF GENERAL TRAITS,
CLIFFSIDE PARK, N. J.

RATING OF PERSONAL QUALITIES					
QUALITIES	CODE =				RATING
	8TH GRADE	10TH GRADE	11TH GRADE	12TH GRADE	
I. SCHOLASTIC ZEAL..... INTEREST, ENTHUSIASM, ENERGY, APPLICATION, ENTERPRISE	CRAVES SCHOLARLY WORK	ENERGETIC	STUDIOUS	USUALLY INDIFFERENT	APATHETIC
II. INTELLECTUAL ABILITY AND APTITUDE..... ALERTNESS, CLEVERNESS, BRIGHTNESS, POWER TO ASSIMILATE, FACILITY OF ADJUSTMENT TO NEW SITUATIONS	KEEN	ALERT AND CLEVER	LEARNS READILY	A SLOW LEARNER	DULL
III. INITIATIVE..... ORIGINALITY OF THOUGHT, RESOURCEFULNESS	VERY RESOURCEFUL	SELF RELIANT	MEETS USUAL REQUIREMENTS	NEEDS CONSTANT SUPERVISION	
IV. INTEGRITY..... TRUSTWORTHINESS, FAITHFULNESS, RELIABILITY, LOYALTY, HONESTY	MERITS COMPLETE CONFIDENCE	DEPENDABLE	USUALLY FAITHFUL	DOUBTFUL	UNRELIABLE
V. LEADERSHIP..... ABILITY TO INSPIRE OR COMMAND THE CONFIDENCE, AFFECTION, GOOD WILL AND LOYALTY OF OTHERS, ABILITY TO SECURE A FOLLOWING	OUTSTANDING	CAPABLE	FAIRLY SUCCESSFUL	A FOLLOWER	NON CO-OPERATIVE
VI. SOCIAL ADAPTABILITY..... PERSONAL STRENGTH AND ATTRACTIV- NESS, CAPACITY AS A MIXER, ABILITY TO MAKE AND HOLD FRIENDS, SOCIAL POISE	THOROUGHLY AT HOME IN ANY SITUATION	POPULAR	FAIRLY POPULAR	SOCIALLY COLORLESS	SOCIALLY REPULSIVE

RECORD OF GENERAL TRAITS BY LEVELS, IRONWOOD, MICH.

Another form of this type of scale which moves further away from generalized descriptions of levels and toward descriptions in terms of behavior is the Haggerty-Olson-Wickman Behavior Scale.¹⁵ A sample item shows how leadership may be rated.

C. Does he get others to do what he wishes?	Probably unable to lead his fellows.	Lets others take lead.	Sometimes leads in minor affairs	Sometimes leads in important affairs.	Displays marked ability to lead his fellows; makes things go.
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¹⁵ Published by the World Book Co., Yonkers-on-Hudson, N. Y., 1930.

Another item in the same scale refers to the child's reaction to a very important life situation, namely, unpleasant but unavoidable interferences.

29 How does he react to frustrations or to unpleasant situations?

Very sub- missive Long suf- fering	Tolerant Rarely blows up	Generally self-con- trolled	Impatient	Easily Irritated Hot headed Explosive
(3)	(2)	(1)	(4)	(5)

Scales are available for investigating levels of advancement in attitudes, emotional adjustments and temperament, in any and all kinds of behavior. The student is referred to the available extensive catalogues both commercial and professional. The construction and detailed use of these instruments should be covered in a course in tests and measurements. Students lacking this background may be directed at this point to further though necessarily superficial study as indicated by exercises at the end of the chapter.

Cameras. Still other devices for recording behavior in controlled or uncontrolled situations are the view camera and the motion-picture camera. Some excellent work has been done by classroom teachers in securing photographic records of pupil's work. This ranges all the way from sequences showing the development of specific behaviors and adjustments taken as opportunity presented itself, to the recording of definite sequences worked out in advance. Pupils often participate in the latter type of record, thus giving double evidence for evaluation.

Teacher- and pupil-made check lists and scales. Previous chapters have developed the validity of pupil participation in evaluation. Any and all aspects of teaching-learning situations; all items within the assign-study-recite procedure; all items occurring in the development of units may at some time or other be considered critically by pupils. Teacher and pupil check lists are constantly being developed for evaluating the pupil's own planning, the adequacy of reference materials, the making of class reports, the arrangement of materials, the inclusion of illustrations, the value of given suggestions, the worth of suggested procedures, and so on through scores of items.

The following samples are from guide sheets developed in two Baltimore public schools.¹⁸

*Guide Sheet for the Teacher in Observing the Coöperative Group Living
within Her Class*

1. Is the child a participating part of the group?
 - a. Does he play and work well with others?
 - b. List the evidences of this.
2. How is he included in the planning of activities?
3. What are the indications of his being resourceful in suggesting other activities?

¹⁸ Miss Grace Rawlings and teachers.

4. Does he work for the best interest of all? How has he shown that he is interested in the success of others?
5. In what ways has he indicated that he has initiative?
6. Has he personal friends?
7. What evidences of self-control have been observed?
 - a. In school
 - b. On the street
 - c. On the playground
 - d. When playing with the group supervised
 - e. When playing with the group unsupervised
8. In what way does he help the less skillful?
9. What devices does he use for an outlet for his own energies?
10. Is he easily discouraged? How account for this?
11. Is he afraid?
 - a. In what ways has he shown fear?
 - b. Does this interfere with his achievement?
12. Is he a good loser? How does he react when on the losing side?
13. Does he have a sense of humor?
 - a. What are his reactions when the joke affects him?
 - b. How does he consider a person's deformity?
 - c. Does he plan jokes that may hurt another's feelings?
 - d. How does he differentiate between a joke and an offense?

It is better to accept these instruments as prepared by teacher groups even if there is some language error and some incoordination between heads. Refinement can follow first uses. A sheet similar to the one reproduced above was constructed by the pupils. A sample only will illustrate:

1. How do I take part in the group discussions?
2. Do I work well with others? If not, why do I not?
3. What help have I given the group in planning?
 - a. For the class assemblies
 - b. For arrangement of the room
 - c. For care of materials
 - d. For the activities
 - e. For recreation
 - f. For carrying out work in the classroom
-
7. What have I done when I wanted to fight? To yell and throw things?

This group of teachers invited the coöperation of parents, and a guide sheet referring to desirable experiences in the home was developed. A sample will illustrate:

Guide Sheet for Parents in Evaluating the Opportunities for Desirable Experiences under Home Control

- II. Am I offering the children opportunities in the home
 1. To find something worth while to do
 2. To understand my problems as a parent
 3. To use proper materials
 - a. For cleaning
 - b. For laundry
 - c. For sewing
 - d. For errands
 4. To help others
 5. To work for the improvement of some item for the good of all in the family
 6. To do household duties as a natural procedure
 7. To be companionable with me

Two comments made by children after these cards had been in use for some time are significant evaluational data:

Mother checks my guide sheet and I check it too. Then we compare our judgments. We have lots of fun and now I go to Mother with problems I didn't tell her about before.

I now make a schedule for myself and find that I can do errands for Mother and still have plenty of time for play.

The same type of instrument can be worked out in single rooms or in small schools. The following fragments are from an extensive set of check lists set up by pupils in a fifth grade in Dedham, Mass.¹⁷ They are in the language suggested by the pupils. The items are to be marked, A, O, E, S, or N, for Always, Often, Equal (about fifty-fifty!) Seldom, and Never.

	A	S	E	O	N
VIII. How kind am I?					
1. Do I say things to hurt other people's feelings?					
2. Do I feed my animals enough?					
3. Do I hit animals?					
4. Do I play with my pets?					
5. Do I shoot birds?					
6. Do I make the horse go while the milkman is in a house?					
7. Do I tease other people?					
8. Do I try to cheer the sick?					
9. Do I shoot birds? [repetition]					
10. Do I push desk covers down on purpose?					
11. Do I untie other people's shoe laces?					
12. Do I step on people's papers when they fall on the floor?					
XII. How good a workman am I?					
1. Do I try to correct my mistakes?					
2. Do I try to do my school work well?					
3. Do I listen when directions are being given?					
4. Do I listen when the teacher is teaching something new?					
5. Do I keep my desk neat?					
6. Do I keep the space near my desk neat?					
7. Do I follow directions?					
8. Do I pass my papers in on time?					
9. Do I study enough so I will know how to do my work?					
10. Do I pay attention to my work?					
11. Do I enjoy doing my work?					
12. Do I do my homework?					
13. Do I let other children do all the work?					

¹⁷ Miss Catherine Grimshaw, teacher.

The successive ratings made by pupils, together with their frank comments and reactions, constituted a most revealing exhibit.

The first grade is not too early to begin analysis and evaluation of conduct. The following problems were raised by a first-grade group in a room where modern practices permeated the building. The conference was in charge of one of the first-grade children and the language of the questions and comments is that of the pupils.

1. It needs to be quieter in the work room.
2. No running in the halls because we get knocked down.
3. No pushing in the cloakrooms.
4. We ought to have our names on sweaters, overshoes, and lunch boxes.
5. Everyone cannot play with the rubber balls at once; everyone cannot use the swings at once. Is it all right to kick the ball or should we only throw it?
6. People must stop throwing sand around out of the sand box.

The children gravely discussed these items for some time, evaluating different kinds of conduct. In each case a set of rules was established by group consent. These rules were adhered to with few exceptions. One boy who persisted in throwing sand found that no one would play with him. Very soon he was volunteering the statement that he would not throw sand any more if they would only let him play with the others! He recognized the group evaluation of his conduct.

A fifth grade, dissatisfied with the type of oral report being made within their own group, analyzed the situation and laid down a simple evaluational instrument.¹⁸

1. Have in mind what we are going to say.
2. Talk plainly.
3. Keep to the subject.
4. Show some pictures or other materials.

A first grade, after studying safety and discussing their own hazards, set up a group of rules which served as guides to conduct and as an evaluational device.

1. Be careful crossing the street.
2. Watch the light.
3. Look both ways before crossing the street.
4. Walk slowly with your partner and stay on the sidewalk.
5. Keep your eyes and ears wide open.
6. Let the policeman help you.
7. Cross streets only at corners.
8. Walk between the white lines.

Older children will coördinate and organize the items more logically but these are accepted as meaningful since they are by and for the first grade. The same first grade engaged in a garden project suggested upon

¹⁸ Miss Frances Phelan, fifth-grade teacher, Miller School, Burbank, Cal.

their own initiative that there was a good deal of likeness between taking good care of the flowers and taking good care of themselves.¹⁰ A health unit had preceded the garden unit. The suggestion itself is excellent evaluational data. The children went further and set up a set of rules in which the two units figured.

1. Drink water every day. (Flowers do.)
2. Get plenty of sunshine. (It helps flowers grow.)
3. Play outdoors in the fresh air.
4. Stand and sit straight if you want to grow straight.
5. Keep yourself clean (The garden must be weeded to be clean.)
6. Take good care of yourself. (Flowers need good care to look nice.)
7. Work hard and play hard.

Behavior records for uncontrolled situations. The check lists and similar instruments yield data far superior to that derived from paper-and-pencil tests. Even better, however, is the direct recording of behavior as it occurs. Written accounts of actual pupil behavior as observed give the best evidence of learning as far as we now know. The description of specific behavior is a far more valid basis for evaluation than the marking of a generalized personality scale. Behavior records for uncontrolled situations are chiefly the diary or log, and the anecdotal behavior journal.

Logs and anecdotal records may include items showing the contribution of the individual

1. To group discussion in defining problems
2. To planning what to do
3. To committee work
4. In securing materials
5. In finding sources of information
6. In making reports
7. In leading discussion
8. In discriminating and evaluating

Records of particular value are those which show

1. What projects were proposed by the individual
2. How these were planned
3. How well they were carried through
4. What evaluation the individual made
5. What was accepted by the individual from the experience

The range of emotional reactions accompanying these experiences should be included also. These general items can be expanded into scores of specifics.

The diary or log. This is, as the names indicate, simply a running account of events. It may be a complete record or may be confined to significant aspects of the learning situation or to significant pieces of be-

¹⁰ Miss Hedwig Nemoroski, first grade, Daniel Butler School, Belmont, Mass.

havior. It may be kept by the teacher or by the pupils, or by teacher and pupil in cooperation. Diaries and logs are instruments of evaluation to the extent that they supply concrete evidence upon which evaluational judgments may be based.

The anecdotal behavior journal. An anecdote is simply an account of something that has happened. The anecdotal behavior journal is a written record of many instances of significant behavior as observed from day to day by competent observers. The list of items is a part of each pupil's cumulative record. The items observed and recorded may be from any and all fields of pupil activity, made at any time and in any place. They deal with various heterogeneous items in school and out, with typical school learnings and with completely out-of-school achievements. Schools with adequate guidance and counseling-service will organize the record around the development of the pupil in consolidating his abilities and strengths, and in overcoming his weaknesses. The individual classroom teacher will use the technique for the more immediate evaluation of given learnings desired as outcomes from her teaching.

A. *The characteristics of a good anecdote.* Behavior records could be carried to extremes if one teacher per pupil busy all day. Selections must be made among the observed behaviors since some are trivial or meaningless while others are significant. Teachers will develop a technique for spotting and quickly recording items that lend themselves to evaluation. This type of record at best takes time and energy but must not be allowed to become cumbersome. It is too valuable to neglect.

An excellent definition is given by Jarvie and Ellingson,²⁰ who have produced the most complete and authoritative account of the anecdotal record so far available.

...anecdotes were composed of objectively recorded behavior incidents, which reflected some significant item of conduct, gave a word picture of the individual in action, provided a snapshot at the moment of the incident, or recounted any event in which the student took part, in such a way as to reveal significant aspects of his personality.

Authorities differ in regard to including interpretations in the anecdotal account itself. Some believe that the facts alone constitute the only fair record, others holding that interpretations are necessary so that the incident may be seen in its setting. The contrast may be shown thus:

Incident reported with interpretation. During the meeting of her class group today, Mary showed her jealousy of the new president by firing questions at her whenever there was an opportunity. She tried to create difficulties by constantly interrupting throughout the period. The other students indicated their resentment by calling on her to sit down and be quiet. She is apparently a natural trouble-maker. I think her adviser should have her in for a serious talk.

Incident without interpretation. During the meeting of her class group

²⁰ L. L. Jarvie and Mark Ellingson, *A Handbook on the Anecdotal Behavior Journal* (Chicago, University of Chicago Press, 1940), p. 1.

today, Alice fired questions at the new president at every opportunity. She interrupted many times during the period. On several occasions the other students called for her to sit down.

Various interpretations could be made in addition to the one included in the first account. Knowledge of the total situation is necessary for sound interpretation.

The following illustrations are taken from logs of units completed by teachers:

Jane, who had whined during the early part of the day because she couldn't have her own way, after listening to the story of Miss Whiney, a story-book character with a long face, spontaneously remarked that she had been a Miss Whiney that morning but wasn't any more. She proceeded to smile engagingly and to cooperate cheerfully during the rest of the session. No remark had been made to suggest any relation between her and the story-book child.²¹

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One mother told me at the Parent-Teachers' meeting that their family had heard nothing but clocks for three days at home. She said she had never seen her boy so interested about anything before. . . . Helen received a book for Christmas entitled "Around the Clock" and asked if she might bring it for use by the other children in school. . . . David volunteered to make a grandfather clock with his Tinker Toy set. . . . Peter, who has made little response so far this year began pointing out clocks in pictures, volunteered to wind the desk clock. . . . Anne brought in a Westinghouse booklet about clocks and watches three weeks after the unit had started.²²

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Parents' comments. I can see Bobbie's study habits improving almost daily. . . . Claire is anxious to recount the progress made on the unit when she comes home and before she goes out to play. . . . Richard's courtesy is very noticeable. His door-holding policy in crowded stores during shopping rush hours is almost embarrassing!²³

The following pupil remarks were overhead and recorded or appeared in papers during a high-school unit on the history of art.²⁴ Significant evidence of learning is apparent.

I used to think that the drawings of figures that the Egyptians did were stupid and queer. They are still queer to me but I know that they are beautiful, too. The colors they used were gorgeous.

It doesn't seem possible at first that such beautiful floors and walls could be made by little pieces of colored glass, pieced together to form beautiful images. Also, that the primitive cave man was able to create such graceful forms for animals.

I think the Greeks had the right idea when they portrayed the human figure as it really is. I tried doing it with clay and found out how difficult it is.

²¹ Beulah M. Sweetser, kindergarten teacher, Kendall School, Belmont, Mass.

²² Helen Toomey, kindergarten teacher, Daniel Butler School, Belmont, Mass.

²³ T. Mary Salo, fifth-grade teacher, M. L. Burbank School, Belmont, Mass.

²⁴ Norman Brule, art teacher, and M. Donald Plummer, art supervisor, senior high school, Belmont, Mass.

Praxiteles needed real skill to sculpture Hermes which I copied. The result (not mine!) was a piece of beauty which lasted

When I see pictures by ancient artists I now get more pleasure in looking at them because I understand more about it

B. *Sources of anecdotes.* The following list is given by Jarvie and Ellingson:²⁵

1. *Prior to entrance*
 - a. Interviews with prospective students
 - b. Interviews with parents
 - c. Interviews with former teachers
 - d. Correspondence with or about prospective students
 - e. Application blanks
 - f. References
 - g. High school records
 - h. Personal questionnaires
 - i. Examinations
 - (1) Medical
 - (2) General intelligence tests
 - (3) Personality adjustment inventories
 - (4) Achievement tests
 - (5) Diagnostic tests
 - j. Residence-hall visits, inquiries, or staying overnight
 - k. Visits to classes by prospective students
2. *After entrance*
 - a. Counseling contacts
 - b. Classroom contacts
 - c. Luncheon contacts
 - d. Hallway, or campus contacts
 - e. Contacts with other staff members, e.g.,
 - (1) Library
 - (2) Medical department
 - (3) Store
 - (4) Secretarial staff
 - (5) Cashier's office
 - (6) Janitors
 - f. Social contacts in social life of school
 - g. Organized extraclassroom activities
 - h. Job relations in cooperative employment
 - i. Families of students
 - j. Other students
 - k. Pastors, employers in homes
 - l. Correspondence with or about students

C. *Forms of record.* Various methods of keeping the records are in use but all are simple and should be kept so. The illustration below²⁶ shows the record of a pupil kept by one teacher. These records are transferred to the cumulative record card in the central office. Detailed records of this type are kept only by the very best schools and where money and

²⁵ *Op. cit.*, p. 32.

²⁶ *Ibid.*, p. 35.

clerical help are available. The individual teacher may keep a record sheet for each pupil in simple form or may keep a card file.

Form V

ROCHESTER ATHENAEUM AND MECHANICS INSTITUTE

BEHAVIOR RECORD

From to Name
Curriculum Class (or Yr.) Sr. Jr. Fr.

Date	Instr.	Anecdotes
9/10/38 ..	H.H.	* She makes very few comments about the work or about herself.
9/25/38...	H.H.	She either works rather slowly or wastes time. I feel it is the former, however, as she apparently works without pausing or entering into discussion. She has never exhibited a great deal of enthusiasm for anything. Her work on the English Tests indicates a need for remedial work.
10/12/38...	H.H.	Was very slow in getting started with the work in English. She made no comments about the work, but studied other materials during the hour.
10/21/38...	H.H.	As a whole she is making very little progress. Frequently she appears listless and tired. It is likely that she lacks physical energy because of a recent illness, though I am inclined to believe she does not have great vitality at any time. Because of the physical factor, it is difficult to estimate the quality of her work. For the most part, it is characterized by carelessness. Having made errors, she shows little interest in correcting them. She is cooperative to the point of doing everything suggested to her—but nothing more.
11/ 2/38...	H.H.	Attended the Glee Club last night for the first time, and was very enthusiastic. When volunteers were asked for a committee to plan a musical assembly, she indicated a willingness to serve. To my knowledge this is the first instance of her actively participating in an undertaking. She was more alive and enthusiastic than I have ever seen her.
11/17/38...	H.H.	Told me that she enjoyed the Glee Club assembly and that she felt much happier than at any time since coming to school. I asked her about her health and she said that she did tire quickly but not as quickly as she had in the past. Now that she is developing enthusiasm, it may be well to be sensitive to her health condition, so that she may be counseled away from a few activities if her newborn enthusiasms tend to result in her attempting too much.

The analysis of creative products. The evaluation of creative activity is by all odds the most difficult of evaluation tasks. *First*, standards of taste cannot be routinized. "*De gustibus non est disputandum.*" *Second*, confusion arises easily between judgments of content and judgments of

form. *Third*, undue analysis easily kills the creative spirit, especially with young pupils and with older ones who are beginners. *Fourth*, individual differences may be as important here as standards. *Fifth*, careless negative judgments have greater detrimental effect here than in most fields. The careful evaluation of creative work must be undertaken, nevertheless, despite these and other difficulties.

The Committee on Appraising and Recording Pupil Progress of the Eight-Year Study, suggests the following characteristics and levels of "creativity and imagination."

General: Approaches whatever he does with active imagination and originality, so that he contributes something that is his own.

Specific: Makes distinctly original and significant contributions in one or more fields.

Promising: Shows a degree of creativity that indicates the likelihood of valuable original contribution in some field, although the contributions already made have not proved to be particularly significant.

Limited: Shows the desire to contribute his own thinking and expression to situations, but his degree of imagination and originality is not in general high enough to have much influence on his accomplishments.

Imitative: Makes little or no creative contributions, yet shows sufficient imagination to see the implications in the creation of others and to make use of their ideas or accomplishments.

Unimaginative: Has given practically no evidence of originality or creativity in imagination or action.²⁷

The pupil's achievement in writing, fine or applied arts, music, research or in contributing to group discussion and decisions may be evaluated in terms of these levels. Beyond this, specialized instruments are available in special subjects. Composition scales ordinarily include two criteria: (a) originality of content and original treatment, and (b) facility of expression. Art-judgment tests and scales for evaluating drawings are available but are not very satisfactory as yet. The method of evaluating by the method of equal-appearing intervals is also used. These various instruments should be treated in courses in testing and in the special methods courses.

EXERCISES

This chapter proved most difficult to write and will doubtless prove difficult to teach. The problem lies in the fact that a balance must be preserved between treatment designed for students who have had or will shortly have a course in measurement and those who have had no more than this chapter presents. The problem is further complicated by the fact that those who have had a typical course in measurement probably received little information about the important modern-type instruments. The exercises under "Supplementary" may aid in adjusting instruction to given class groups.

Exercises 1-8 immediately below should be done by all students. The supplementary exercises are for groups which cannot manage the first group on the basis of present information. In any event, study of this chapter will doubtless take considerable time.

²⁷ Eugene R. Smith, Ralph W. Tyler, and staff, *Appraising and Recording Student Progress* (New York, Harper & Bros., 1942), p. 478.

1. How could we tell by observing the ordinary activities of a high-school girl that:

- a. She *understood and desired to apply* dietetic principles presented in her home-economics courses. Or did not understand?
- b. She *understood and desired to apply* principles involved in design, or in household decoration?
- c. She *understood and desired to apply* the advice of a counselor regarding the importance and significance of choosing a life work and preparing for it?

2. We wish to determine whether a student has acquired a good understanding of the doctrine of evolution—not merely the evolution of man but the doctrine as a basic method of viewing the world and affairs. Forget the traditional school test of information. Give some of the everyday responses in the language or overt behavior of the individual which would indicate that he understood the evolutionary or developmental point of view. Use possibilities of everyday life; do not use school situations.

3. Go over the discussion questions and exercises at the close of the chapters in this volume. Select one which in your judgment is a very good test of the understandings presented in the chapter, one which is fair, and one which does not test at all for the specific learnings involved. Support your choice in each case with argument.

4. Select any major understanding or attitude which is a legitimate outcome of this course. Make up a check list of observable evidences which might indicate possession or non-possession of the specified outcome.

5. Select any outcome or series of outcomes which would be legitimate outcomes in your major field. These may be general to the field, or specific items derivable from limited areas (topics, units). List the observable evidences you would accept as indications that the specified outcome or outcomes had been achieved.

The foregoing are designed to focus your attention upon the evidences of learning. The last one brings us closer to school testing. The following questions are among the most important in this volume and will demonstrate your achievement of the important understandings and techniques here, or the lack of this achievement. These exercises are themselves direct evaluations of your understanding of evaluation!

6. Design any one of the following for use in a teaching unit which you are now planning or operating. (This will take several days and preliminary study may be necessary as outlined in the note below.)

- a. A problem-situation test
 - b. Four valid essay questions
 - c. A check list or rating scale
 - d. A best-answer or multiple-choice test necessitating judgment
7. Make critical report upon any anecdotal material
- a. Occurring within your own teaching situation if in service
 - b. Observed by you as usable during your period of observation-participation

Supplementary Exercises

Note concerning Questions 6 and 7. These questions, particularly 6, are the most important in this list and among the most important in the whole volume. Each student should produce one or more evaluational instruments useful in his current teaching, or if not in service, applicable to the outcomes of the unit he is constructing.

Preliminary study beyond that supplied by this chapter may be necessary for stu-

dents who have not had a course in measurements. This volume can at best only introduce students to the problems of evaluation. The following exercises are "stop-gaps" between this brief treatment and the adequate special course in measurements which all students should have eventually.

1. A student or series of small committees may compile a brief bibliography of recent articles on check lists and rating scales, their construction and use. Several committees should doubtless divide the field, since so many types of lists and scales are available. Report orally with illustration. *Pay particular attention to instruments designed to evaluate pupil activity within units: participation in defining problems, in making suggestions, doing research, making reports, working in groups, etc.*

2. The same procedure may be followed for problem-situation tests designed to test critical thinking or the possession of important understandings. Committees may divide, if desired, by subject fields.

3. The same procedure may be followed for best-answer and multiple choice tests. Study should be confined here to tests of this type which test judgment, omitting those which test memory.

4. Essay-type questions cannot be studied in this manner since illustrations rarely appear in print. Valuable analysis and report can be made, however, if students can secure copies of examinations from high school and college instructors. (The instructor should have a collection of examinations and individual questions usable here.)

5. Search logs of units in the local collection and in the periodical literature; search articles or anecdotal recording for illustrations of anecdotal material. Analyze critically and report with illustrations.

READINGS

A collection of illustrative evaluational instruments is as imperative here as were the collections of units, assignments, and lesson plans previously used.

Sources of Illustrative Instruments

1. *A local collection*

Many teacher-training institutions now maintain large collections of tests, scales, check lists, record forms, etc. Lacking such a collection, the instructor should build one of his own. Students must have opportunity to read and examine many types of instruments.

2. *Textbooks on tests and measurements, and on guidance*

Nearly a score of books are revealed by the card catalogue in any standard library. The following samples were selected because of their extent and recency of publication. Others are easily available.

- a. GREENE, Edward B., *Measurements in Human Behavior* (New York, The Odyssey Press, 1941). Scattered through volume. Very valuable.

- b. GREEN, Edward A., JORGENSEN, Albert N., and GERBERICH, J. Raymond, *Measurement and Evaluation in the Elementary School* (New York, Longmans, Green & Co., 1942), Chaps. 5-12, 14-20.

- c. —, *Measurement and Evaluation in the Secondary School* (New York, Longmans, Green & Co., 1943), Chaps. 12, 14-23.

- d. PATERSON, Donald G., *Student Guidance Techniques* (New York, McGraw-Hill Book Company, Inc., 1938), Chaps. 3-8.

3. *The Education Index*

Many articles are available dealing with the construction of instruments, the use of instruments, the results of such use, etc.

4. *Bulletins on evaluation, issued by local school systems*

Many of the city, county, and state school systems engaged in a modern program of curriculum issue from time to time mimeographed or printed bulletins on evaluation. These often contain excellent samples of new instruments.

Catalogues of Evaluational Instruments

1. BUROS, Oscar K., *Educational, Psychological, and Personality Tests of 1933, 1934, 1935* (New Brunswick, N. J., School of Education, Rutgers University, 1936).
2. —, *Educational, Psychological, and Personality Tests of 1936* (New Brunswick, N. J., School of Education, Rutgers University, 1937).
3. —, *Mental Measurements Yearbook, 1938* (New Brunswick, N. J., School of Education, Rutgers University, 1938).
4. —, *Mental Measurements Yearbook, 1940* (Highland Park, N. J., Mental Measurements Corporation, 1941).
5. HILDRETH, Gertrude H., *A Bibliography of Mental Tests and Rating Scales* (New York, The Psychological Corporation, 1939).
6. WANG, Charles K., *An Annotated Bibliography of Mental Tests*, 2 vols. (Peiping, China, Catholic University Press, 1939-1940). An excellent reference, possibly the best now available. Includes practically all known instruments which are available commercially. Excellent notes. Volumes are available in many libraries in the United States.
7. The bulk of test and scale publishing is done by the Public School Publishing Company, of Bloomington, Illinois, and the World Book Company, of Yonkers-on-Hudson, N. Y. Their regular catalogues are valuable as reference lists.

GENERAL REFERENCES SIMILAR TO THIS CHAPTER

(May be skimmed rapidly for background.)

- "Appraising the Elementary School Program," National Department of Elementary School Principals, *Yearbook*, 1937.
- BARR, A. S., BURTON, William H., and BRUECKNER, Leo J., *Supervision* (New York, D. Appleton-Century Company, Inc., 1938). Chapter 6 good introduction for experienced teachers.
- HOPKINS, L. Thomas, *Interaction* (Boston, D. C. Heath and Company, 1941). Chapter 10 is an excellent discussion of modern theory. No illustrations.
- "Educational Diagnosis," *Thirty-Fourth Yearbook* of the National Society for the Study of Education (Bloomington, Ill., Public School Publishing Company, 1933). Extensive discussion.
- LEE, J. Murray, and LEE, Dorris M., *The Child and His Curriculum* (New York, D. Appleton-Century Company, Inc., 1940). Excellent quick summary. Emphasis upon evaluating changes in the learner.
- LEONARD, J. Paul, and EURICH, Alvin C., *An Evaluation of Modern Education* (New York, D. Appleton-Century Company, Inc., 1942). Whole volume interesting and valuable.
- "Newer Instructional Practices of Promise," *Twelfth Yearbook* of the National Department of Supervisors and Directors of Instruction. Chapter 15 is a simple and brief introduction suitable for teachers of less experience who are just discovering the newer instruments of evaluation.
- REAVIS, William C., *Evaluating the Work of the School* (Chicago, Ill., University of Chicago Press, 1940). Somewhat advanced and abstract. Some good general ideas may be derived.

- Review of Educational Research*. This is a quarterly summary published by the American Educational Research Association. The index and table of contents will reveal materials of value here.
- ROSS, C. C., *Measurement in Today's Schools* (New York, Pientice-Hall, Inc., 1941). Good general reference. Uneven but much good material. See chapter 17 in particular.
- SCHORLING, Raleigh, *Student Teaching* (New York, McGraw-Hill Book Company, Inc., 1940). Chapter 8, excellent.
- SMITH, Eugene R., TYLER, Ralph W., and others, *Appraising and Recording Student Progress* (New York, Harper & Brothers, 1942) Volume 3 of the Eight-Year Study. A mine of information and illustration.
- THAYER, V. T., ZACHRY, Caroline B., and KOTINSKY, Ruth, *Reorganizing Secondary Education* (New York, D. Appleton-Century Company, Inc., 1939), pp. 448-471. Excellent general discussion.
- WRIGHTSTONE, J. Wayne, *Appraisal of Newer Practices in Selected Public Schools* (New York, Teachers College, Bureau of Publications, 1935). Excellent illustrations of "codes" or guides for evaluating types of public behavior Chapter 2, pages 26-54, for elementary-school illustrations; Chapter 4, pages 75-104, for secondary-school illustrations; Chapter 6, pages 112-117, for summary and implications.
- , *Appraisal of Experimental High School Practices* (New York, Teachers College, Bureau of Publications, 1936). Good illustrations.
- , *Appraisal of New Elementary School Practices* (New York, Teachers College, Bureau of Publications, 1938) Good illustrations.

Samples of More Specialized References

- California Journal of Secondary Education*. Special reprint of October, 1939, issue, or see in bound volume No. 14. Contains seven valuable articles produced by the Stanford Workshop in Evaluation during the summer of 1939. Excellent illustrations of problem-situation tests in science, of behavior and attitude scales.
- Commission on the Secondary School Curriculum of the Progressive Education Association. All volumes listed published by D. Appleton-Century Company, Inc.
- Science in General Education* (1938). Chapter 9, pages 388-439, contain excellent general discussion plus many challenging illustrations.
 - Mathematics in General Education* (1940). Chapter 13, pages 338-382, contain excellent general discussion and illustrations.
 - The Visual Arts in General Education* (1940), Chapter 4, pages 96-120.
 - Social Studies in General Education* (1940), Chapter 9, pages 312-381.
- JARVIE, L. L., and ELLINGSON, Mark, *A Handbook of the Anecdotal Behavior Journal* (Chicago, University of Chicago Press, 1940). Excellent compact account with adequate explanations.
- KELLEY, T. L., and KREY, A. C., *Tests and Measurements in the Social Studies* (New York, Charles Scribner's Sons, 1934).
- VOORHEES, Margaretta A., *Child Analysis: A Manual for the Voorhees Pupil Progress Records*. Published by the author, Beaver Country Day School, Chestnut Hills, Mass., 1933. Excellent detailed illustrations of guides for evaluating and marking.
- Many of the recent texts on the teaching of special subjects have good chapters on evaluation with illustrative instruments. The older texts have practically nothing

General texts on tests and measurements, particularly those referred to above contain much discussion and many illustrative instruments for use in special subjects.

The Periodical Literature

Current developments in this field are so important and appearing so frequently that special effort should be made to keep up to date. Footnotes throughout the chapter indicate the type of material. Class reports should be made on selected articles and groups of studies.

The Diagnosis of Learning Difficulties

The traditional teacher diagnoses the causes of failure to learn very easily. A pupil who does not learn is "dumb," that is, he lacks the requisite mental ability, or it may be that "he could learn but he just won't work." The weakness in these diagnoses is that they have little relation, in most cases no relation, to the facts. These diagnoses may dull the conscience of the teacher and bring her peace of mind, but they do not improve the teaching-learning situation.

Pupil failure is a serious matter for all concerned—pupil, teacher, and society. Simple, superficial answers are more dangerous than no answers at all. The causes of pupil failure are actually very complex and numerous. A combination of causes, moreover, is usually found in any given case. Secondary causes are often treated as if they were primary. Symptoms of failure are often confused with causes. A given factor may be both a symptom and a cause depending upon the level of analyses.

SECTION I

THE CAUSES OF FAILURE

Failure must be defined. The majority of monographs and articles on school failure are shockingly superficial. Definitions of failure are not included, hence much of the discussion is pointless, even sharply contradictory. Standards and degrees of success are not even mentioned in many cases. An analysis of the extensive literature reveals that failure may be variously defined depending upon the theory of education and of learning accepted. It may be:

1. Failure of the pupil to achieve within a given time limit a level of subject-matter mastery or skill arbitrarily designated by adults. Such standards are usually set without regard for, often in defiance of, the known facts about the learner and his learning processes, the known facts about individual differences.
2. Failure of the pupil to do as well as he can do in subject-matter mastery or skill development. The standard is still adult-set levels of subject matter or skills, but there is some attempt to relate the standard to individual abilities, interests, and to differences among learners.
3. Failure of the pupil to develop and grow in terms of his own organismic pattern, that is, in terms of his own native ability and rate of growth, toward socially desirable goals.

The first and third definitions indicate fundamentally different conceptions of the aims of education, of teaching and learning, of the curriculum, of school administration. The second is an effort toward compromise. Attempts to utilize within a given school system features from the two different types of education are doomed to failure as we shall see in the following pages.

The difference between the first basis for failure, which we may call the "grade-standard-basis," and the third which we may call the "continuous-progress-system" has been set forth consistently throughout this volume and will not be repeated here. Incidentally, we may note that many pupils who do *not* fail under the first standard do often completely fail to grow in emotional stability and in personal-social-moral traits. The first standard and the conception of education on which it is based are narrow and limited.¹

Failure in the traditional school. All failures in the traditional school come under the first definition. But, we may ask, is this truly failure by the pupil? Can a pupil be said to have failed if he works to the very best of his ability, works conscientiously and continuously, and still does not reach a standard set without regard to his native ability? Failed in what? *The pupil has here clearly failed to "pass" a standard which he could never pass under any known circumstances.* The objection may be raised at this point that in some cases the standard may not be wholly arbitrary but determined by the *average* performance of large numbers of pupils of given ages and grade levels. This alleviates but does not cure the difficulty. If a pupil works to the *best of his ability*, expends his best efforts consistently, and still does not come up to the *average for his age and grade*, has he failed? Obviously not. Failing a pupil under this standard is as absurd as to tell a child on his ninth birthday that he cannot be nine because he has not grown so tall or so heavy as the other children in the neighborhood. No one would think of making a child "repeat" his ninth year of life but schools constantly require pupils to "repeat" a grade in which the pupil has *already done as well as his ability and strength permit him to do*. The pupil needs, not repetition of the same experiences, but more experiences of similar nature and more time in which to grow.

The majority of pupil "failures" in the traditional school are not truly pupil failures at all but failure of the school, or of the home, or of some other factor. Failure of the school is clearly seen when it "fails" to adjust

¹ The immediately following pages will set forth in summary fashion many important implications of the two conceptions of failure, many specific suggestions. The detailed facts and figures and other research material serving as background are admirably set forth in two excellent references:

Hollis L. Caswell, *Education in the Elementary School* (New York, American Book Co., 1943), Chap. 11.

Henry J. Otto, *Elementary School Organization and Administration* (New York, D. Appleton-Century Co., 1934), Chap. 6.

to the known and inescapable facts concerning the nature of the learners, his needs and purposes, and his learning process. Changes need to be made in the philosophy and aims of those in charge of the system, in the curriculum, in the methods of teaching, in guidance and counseling. Sometimes the fault lies not with the school but with the home which fails to supply favorable study conditions, fails to maintain an attitude favorable to education, fails to insist on study habits, hygienic living, proper nutrition, etc. The fault may lie with the general economic status which necessitates work during out-of-school hours, which makes malnutrition inescapable. Other community factors contribute.

Failure in the modern school. The modern school, in contrast, would regard as failing only the pupil who was not learning so well as his own native ability and rate of growth permit. The modern school attempts to arrange all learning conditions beginning with the philosophy and aims of the staff, down to routine physical conditions, so that all pupils who will may learn. Curriculums, methods of teaching, standards, and all other instructional factors are arranged in the light of the known facts about the learner. Effort is made to correct or to alleviate some of the factors wholly outside the school but which affect the learning and growth of pupils. Hence the problems of imposed failure, of retardation and repetition, the stigmas of "being kept back" and "not promoted" are avoided. Progress toward this desirable situation is of necessity slow.

Pupils on all levels already possess many beliefs, attitudes, and habits inimical to learning. The pupils do not come to any given teacher unscathed by previous experiences. There will be failures, therefore, even in good modern schools: pupils who do not achieve to the best of their ability.

The so-called no-failure program, or continuous-progress system:
Application to the modern school. The effort to organize the modern school so that continuous progress in terms of capacity would result brought into being the term, "no-failure" program. Misunderstandings of far-reaching import arose, as will be seen a few lines below. The term "no-failure" should be eliminated from the educational vocabulary, to be replaced by "continuous-progress system."

The development of a true continuous-progress system is a long, slow process. Philosophies, curriculums, methods of teaching, administration must be slowly reorganized. Teachers must be re-trained and the public kept abreast of developments. The modern school makes every effort to discover the real, often deeply hidden, cause of failure, to adjust the pupil sympathetically, so that he is able to profit from the learning experiences provided and which are well adjusted to his level and maturity. Flexible grouping on the basis of social maturity is provided with passage from group to group coincident with growth. Directional progress goals replace arbitrary grade standards. Remedial work is prominent.

Under ideal conditions failure could theoretically be eliminated. In any event it can be materially reduced.

Application to the traditional school. The traditional school uses diagnosis and remedial work also, but the criterion of success or failure is still an arbitrary standard outside the pupil and beyond his capacity. Hence, there will be in this school a varying number of "failures" who cannot possibly be saved no matter what remedial measures are applied. Failure is imposed on certain pupils by the school itself. The traditional school cannot truly ever avoid a certain residual percentage of failures.

Many traditional school systems have recently attempted to meet their problem of failure through the wholly uncritical adoption of a "no-failure" program. The usual procedure in this situation is to promote every pupil at each promotion period regardless of the pupil's efforts, attitudes, or achievement. This is often called "one hundred per cent promotion." This can only result in chaotic confusion. Every one is relieved of responsibility for results, for diagnosis of learning difficulties, for adaptation to individual differences, for guidance, and for remedial effort. This uncritical use of the no-failure concept in traditional schools is clear-cut evidence of ignorance on the part of the leadership. The whole structure of learning, particularly the difference between traditional and modern teaching, is quite unknown. The elimination of non-educative failure cannot be achieved through the unintelligent borrowing of a procedure from a fundamentally different scheme of education: it can be achieved only through a genuine reorganization of the whole system. *A true no-failure, or continuous-progress, or one-hundred-per-cent-promotion procedure is impossible in an unreconstructed traditional school.* The question in the traditional school is not failure versus non-failure: it is, rather, what to do with the failures? Should failing pupils be promoted to "get what they can" from the next grade, or should they be made to "repeat the grade"?

Wholesale promotion versus repeating grades. The dilemma, promotion or retardation for failures and borderline cases has always existed in the traditional school. The uncritical interpretation of "no failure" has merely made it more complicated and chaotic. Practical teachers are genuinely disturbed and constantly ask for advice: shall failing pupils be promoted or made to repeat? There is no one right answer; it is strictly a matter of local policy which in turn rests upon several factors.

First, we know that repetition of what has once been covered is a distinctly detrimental procedure. The evidence is clear-cut and voluminous to show that repeating a grade is rarely beneficial; it is often accompanied by actual lowering of achievement. In too many cases it is destructive of mental hygiene. The more docile pupils may not show this through overt disorder, but they do build up antagonistic attitudes, defense mechanisms, and in some cases serious personality maladjustments. Teachers in the past have been completely uninformed concern-

ing causes and symptoms of bad mental hygiene, but fortunately there is an increasing amount of excellent practical material being disseminated among teachers. The more aggressive pupils develop active antagonism and engage in open disturbance, play truant, and sometimes openly revolt. Repeating a grade is then definitely undesirable and to be avoided if possible. Repeating a grade, however, seems forced upon us sometimes by the limited facilities and possibilities of a given situation.

Second, the local situation, spiritual and material, must be considered in developing a policy. The traditional school system has several choices depending upon size, money, and facilities, leadership and training of the staff. A school or system large enough to have several sections of the same grade will do well not to fail pupils but to transfer them to other sections at promotion periods. The pupil does not repeat but does get further experiences on a level which will promote his growth. The very change of teachers, classmates, and learning experiences is often beneficial. In any event certain stigmas and antagonistic attitudes are avoided.

A school system too small to permit this type of transfer is forced to choose between evils: the promotion of insufficiently prepared pupils or repetition of the previous grade. Teachers favor the one or the other in given situations purely on the basis of prejudice, self-interest, or honest but mistaken reasons based on experience. Arguments go on endlessly, but there is no real answer. Superintendents and teachers may choose freely; one of the solutions is as bad as the other. The only alleviation possible in small systems is to provide as much diagnosis and remedial work, as much individual assistance, as much counseling and guidance as is possible with limited staff and money.

The lazy, the uninterested, the antagonistic pupil and failure. Many teachers will agree to the foregoing as good theory applicable to ideal conditions but will object that it will not work "practically." "For," say these teachers, "we have many stupid, lazy, indifferent, or actively antagonistic pupils who cannot or will not learn. Are not such pupils to be failed and made to feel the weight of failure regardless of the type of school?" Complete sympathy may be extended to these teachers but not complete agreement. The question is not so simple. Further analysis will develop a sounder policy.

First we must avoid the error of confusing a symptom with a cause, of confusing a secondary with a primary cause of failure. Practically no normal child is inherently lazy, or indifferent to new experiences, or antagonistic to situations and persons: he becomes so because of his life experiences. Many pupils are said to be lazy, indifferent, or antagonistic because in reality the curriculum is not worth any attention, is not relevant to the lives of the pupils. Teaching methods which are uninteresting and repressive are the causes of indifference or antagonism. Sarcasm, punishment, and pressures have built up indifference and

antagonism. Unsympathetic teacher personalities have the same effect. Home conditions, parental attitudes, poor discipline may be the primary causes of "laziness, indifference, and antagonism." Again, malnutrition or fatigue may be the real causes. This type of analysis could be continued indefinitely, as will be seen from the listing of primary and secondary causes of failure later in this chapter. Failing the pupil for the symptoms will not cure the cause. The real cause is not touched, often not even recognized. Failing or punishing the pupil only aggravates the condition it is to cure. Should these pupils be failed? Certainly not. The whole scheme of their education should be changed.

The practical teacher will object further, saying that this is all very nice but that she cannot change the scheme of education; cannot change curriculum, the superintendent's policy, the home conditions, the economic status; cannot change the neighborhood influences, or what not. She has pupils on her hands who must be taken as they are now. What to do? She is quite right, but her common and immediate solution of this problem—indiscriminate "flunking"—is not the only answer. *First*, the fundamental principle of all teaching still stands. Sincere efforts must be made to secure the interest of the indifferent, the confidence of the antagonistic. This is a long slow process of reestablishing confidence in the school and in the teacher. Many individual teachers have taken this hard way and have helped scores of pupils, redirecting them on the way to useful citizenship. *Second*, firm pressure sympathetically applied is quite legitimate, as outlined in Chapters 3 and 4. *Third*, a teacher overwhelmed with numbers, overworked, and undertrained cannot avoid failing the worst cases. It is quite true that a certain proportion of pupils arrive at a given level possessed of attitudes and habits so antagonistic that they cannot be overcome quickly and in ordinary situations. The practical teacher is then correct in failing some of these pupils. Such a teacher and the administrator must recognize, however, first, that this is an ultimate resort, and, second, that the fundamental cause of the difficulty is not being touched. These pupils should be directed into long-time programs of rehabilitation which only large systems can provide.

Pupils who are actually too retarded mentally to learn at anything like a normal rate do not belong in an ordinary class. The real solution is the special class or school. Small systems who must keep these children in regular classes may promote or retard as they wish; there is no right answer.

Pupil responsibility for avoidance of failure. The poor, harassed teacher probably asks at this point whether or not the pupil has any responsibility in the cure of failure. Most assuredly he has. The foregoing discussion which seemingly assesses responsibility to everything and everyone except the pupil has been necessary to correct erroneous beliefs which are widely held and firmly entrenched. Before defining pupil responsibility it is important to know, for instance, that the causes

of failure are far more often outside the pupil than within him; that many causes of failure are wholly beyond the control of the pupil; that many causes are complex and hidden; that the practical classroom teacher is often seriously misled in diagnosing failure. It is important to know that attacking symptoms, which is what most teachers do, will not cure the disease; to know that any cure is a long-time process is likewise important. Some conditions making for failure are, however, within the understanding and control of the pupil. Responsibility is clear but this responsibility will not necessarily be assumed automatically by all pupils. Methods of developing this responsibility are delicate and complex; inept methods often lead to refusal of the responsibility.

Pupils in early primary cannot be expected to take much responsibility for avoidance of failure. The whole scheme of their education should be such that failure does not enter the picture. These children are getting varieties of necessary experience, building understandings, attitudes, and habits. Understandings and attitudes about and toward education, about and toward the nature of society, and of the abilities required for success within society are among the most important that will develop. With increasing maturity and insight the older pupils may be expected to apply these learnings to their own conduct; to assume responsibility for their results.

The pupil even in good schools meets many situations in which he may take one of two paths. Unfortunately, little social criticism attaches if he takes the easier. Pupils may do "fairly well," or they may do their very best; may "get by" or turn in a finished product. But learning itself clearly includes recognition of socially desirable procedures, realization of the effects upon the individual and on society of different types of effort, different levels of conscientiousness. Organizing education around pupil purpose should eventually make purposeful work habitual. Ability and willingness to carry tasks to completion, to fulfil undertakings are desirable learning outcomes. Certainly pupils are to take responsibility for learning and avoidance of failure in so far as they can control the factors. They will do this readily when brought up in desirable learning situations.

Young persons, being young, are discovering the world. A multitude of interests and activities beckon. Adults forget that children do not (and should not) think like adults. Pupils must sometimes be reminded of responsibilities and desirable procedures. Herein often lies one of the tragedies of the school. Being told that they should study because "schools cost the community a lot of money," because "your parents sacrifice to send you," because "it is your duty," simply leaves the average pupil indifferent. These are verbalisms and mean nothing to him. Bullying, threatening with failure, sarcasm, and ridicule beget active antagonism to the school and defiant refusal to study. Keen judgment and social sensitivity on the part of the instructor will lead to positive

methods adapted to individual differences. One of the best devices is a sympathetic, informal inquiry into the difficulties and obstacles, the real problems of the young person. He may be in desperate need of aid, of security, of some one he can trust not to laugh at him. A few simple hints on study or upon the control of outside factors have saved many a failure. More direct counsel and guidance on specific items will aid in other cases. Casual comments, joking but encouraging remarks about potential abilities will suffice with many pupils. Direct criticism and pressure may be necessary in given cases but must always be courteous, sympathetic, and forward-looking. Sarcastic reference to past blunders and a probably unfavorable destiny may be omitted!

Failure differs as between general and special education. One further distinction needs to be made. General education, as has been pointed out, includes materials and experiences necessary for the common-life activities of all citizens as citizens. We are not here concerned with training for specialized vocational pursuits. The only possible standard for success or failure with normal pupils within the area of general education is growth in terms of individual capacities toward socially desirable ends. Continuous progress goals need to be substituted for grade standards. A pupil who cannot progress under favorable learning situations, who cannot achieve results necessary for his own maintenance in society, is subnormal and should be placed in a special class or school.

"The situation changes fundamentally when the pupil enters the level of exploratory courses and specialized subjects leading to eventual vocational or professional training. Here the standard of success or failure lies clearly outside the pupil. The standard is now the achievement of certain knowledges, attitudes, and skills which are demonstrably necessary for success in given vocations or professions. Levels may now be set for the mature student to pass or fail. Much of the confusion in schools today results from applying this standard which is wholly sensible in special education to general education where it is senseless.

Failure as indicative of "high standards." A certain type of private school and many traditional high schools point with pride to their high percentage of pupil failure. These schools assign "hard lessons," tolerate "no nonsense," and ruthlessly fail pupils who do not reach the standard. No inquiry of any sort is made into the cause of failure, the school glibly reporting that failing pupils are dull, lazy, or otherwise unfit for academic work. They are "not our caliber." Since many of these students are eminently successful in out-of-school activities at the moment, since many succeed later in life, the reasons given by the school are patently absurd. Despite this curious blunder in logic, many older schools have advanced the slogan that a high percentage of failure is proof of the "high standards" of the institution! Many public high schools, whose sole purpose and reason for existence is to educate persons, unblushingly state that the more they fail the better job they are doing! High pupil-

failure rate, far from being indicative of high standards, is direct, first-hand evidence of gross incompetence on the part of the school and of its teachers. It indicates the very lowest standards of teaching efficiency. The modern democratic school realizes that high pupil-failure is a criticism of the school and eventually a danger to democratic life. Diagnosis of failure, remedial work, and eventually—it is hoped—the elimination of failure are the true indications of "high standards."

A medical or engineering, or other vocational or professional school might be able to achieve truly higher standards by failing large numbers of mediocre candidates, but not a school devoted to general education. Even in the professional school, care would have to be exercised to see that failure was not connected merely with poor teaching.

The educative effect of failure. Is there, then, to be no failure at all in school? Will not this make the pupil soft and unable to face disappointment, unable to meet standards? Surely, the critics say, pupils will meet with failure in real life and a soft policy in school will leave them unprepared for the harsh demands outside of school. This problem was adequately discussed twice in earlier chapters. Details will be omitted here, only two summary statements being repeated. *First*, failure imposed arbitrarily upon individuals and by circumstances beyond the control of those individuals is definitely destructive of personality values and of mental hygiene, conducive of the most undesirable attitudes and practices. *Second*, failure resulting from the individual's own immature judgment, hasty or ill-considered reactions, or emotional interferences, and definitely recognized as such, is definitely educative. The modern school provides ample opportunity for the latter type of experience.

Complexity of problem indicated by difficulty of constructing a logical outline of causes of failure. The genuine difficulty of the problem of failure becomes apparent when one attempts to construct a coherent, logical summary of the causes of failure. The amount of cross-reference and interrelationship necessary would result in an outline so detailed, voluminous, and cumbersome as to defeat its own purpose. For instance any given, specified case of failure may be owing to (a) any one of several different primary causes, (b) any combination of several primary causes. Complexity is increased by the fact that (c) any one primary cause may produce a dozen different types of secondary causes and different sets of symptoms in as many different pupils.

A teacher may report a boy failing because he will not work. The primary cause in one case may actually be malnutrition resulting from poverty; in another case, malnutrition resulting from an unbalanced diet in a home well able to supply adequate meals; in another, malnutrition owing to unsupervised eating habits even where good meals are provided. In still another case the real cause may be fatigue resulting from over-work outside school which in turn is due to poor economic status; in another, owing to earlier illness; in still another, to antagonistic home

attitudes; in others, to poor teaching in earlier grades, to a poor curriculum, to worry over family matters, to emotional insecurity, which in turn may be owing to any of a score of causes. Any one of these primary causes can in turn be broken down into numerous details ranging all the way from incorrect educational aims on the part of the school to the minutiae of poorly made assignments, inadequately initiated units, or poorly worded questions. This type of analysis can go on and on indefinitely testifying to the complexity of the problem. A boy reported failing because he will not work may actually be failing for any one of a dozen different reasons or combinations of reasons. The difficulty faced by "practical" teachers is seen in the fact that in given cases of failure six teachers often turn in six wholly unrelated reasons for the failure. Three different reasons for a given failure is a commonplace in ordinary practice.

An illustrative listing of the causes of failure. A complete outline of specific causes of failure would necessitate repeating every detail included in any volume on the principles of education and of teaching. A logical outline is likewise impossible for the reasons set forth just above. The guidance derived from the following analysis will not be, therefore, in terms of detailed answers for all specific cases encountered by the teacher; it will be found instead in a set of principles based upon the outline.

The Primary Causes of Failure

I. Resident in the Pupil

A. Physical shortcomings (congenital or acquired deficiency or deformity) not curable by individual effort or by education

1. A central nervous system inadequately developed, injured, or diseased, thus making mental or emotional normality difficult or impossible
2. A peripheral nervous system, sense organs (eye, ear, vocal apparatus, etc.) inadequately developed, injured, or diseased, thus making normal interactive experience with the environment difficult or impossible.
3. Glandular imbalance
4. A physical deformity making for mental or emotional instability
5. Incurable illness

B. Mental shortcomings (congenital or acquired deficiency or disability) not curable by individual effort or by education

Insufficient mental ability is listed here as a primary cause, but it may be in fact a secondary cause based upon a defective nervous system, glandular imbalance, or the like.

Furthermore, sharp distinction must be made between definite mental inadequacy and seeming or deceptive lack of mental ability. Lack of mental ability, so-called in many cases, actually turns out to be lack of interest in poor curriculums and the result of poor teaching; lack of interest or active antagonism due to unfavorable teacher personality, unfavorable home attitudes toward school; lack of energy owing to malnutrition or overwork outside school; lack of interest owing to con-

tinued failure, which in turn may be owing to poor study habits, in turn to poor teaching, or poor home environment not conducive to study, and so on.

Finally, it must be remembered that intelligence, defined as ability to do school work, manifests itself very differently in different situations. Previous experience, guidance, success or failure, the total educational situation—all affect this. The motives and ambitions of the pupil also definitely affect the results obtained as well as the level of mental ability.

II. *Resident in the social order*

A. *Inequitable distribution of resources*, resulting in inadequate financing of schools, poor economic status of many homes, etc.

1. Inadequate educational situation:

- a. Poorly constructed, unattractive buildings with poor facilities; inadequate play space and other special items
- b. Inadequate curriculum; poor or non-existent instructional materials; large overcrowded classes, inadequate pupil experiences; heavy teaching load
- c. Poorly selected, poorly trained, poorly paid teachers

2. Undesirable housing, neighborhoods, inadequate recreational facilities

3. Low economic status of many homes:

- a. Lack of education resulting in parental antagonism toward school and in lack of cooperation, resulting in truancy and absence
- b. Necessity to supplement family income involving work after school, resulting in fatigue and other contributing causes
- c. Stress and strain within family group owing to economic insecurity
- d. Absence of books and magazines, library cards, travel experiences, and other cultural items
- e. Malnutrition. (This is found also in homes of good economic status, but for different reasons.)
- f. Frequent moves in search of employment resulting in changes in schools and in gaps in schooling
- g. Lack of protection from disease, failure to have adenoids removed or other necessary care; lack of glasses or other physical aids
- h. Lack of quiet place to study

B. *Control of school by conservative elements* in present adult generation who received their education in the past; *by untrained, inert, and often cowardly educational leaders*

- 1. Aims of education out of date; an undemocratic philosophy of education
- 2. Lack of modern scientific approach
- 3. Undemocratic administration and supervision
- 4. A curriculum poorly or not at all adapted to the needs, interests, and abilities of the pupils, to the needs of the community
- 5. Traditional teaching methods based upon an erroneous conception of the learner and of learning
- 6. Traditional grade organization, arbitrary standards of promotion, wholly theoretical grade-a-year progress
- 7. Adult standards of success set up without regard for the nature of the learner, of learning, of individual differences

8. Lack of an adequate program of professional improvement for the staff
 9. Failure of the professional leaders to inform and educate the public
 10. Inadequate local financing of school program in all its details with concomitants already listed
 11. Inevitable direct contact with racial, national, religious, and political prejudices
- C. *Low regard for education*, for teaching, and for teachers on part of substantial numbers of lay public
1. Poor financing, equipment, and program as already listed
 2. Poor standards for teacher selection and training, low required levels of:
 - a. Professional equipment: meager training and experience, poor methods, ignorance of modern concepts of learning, of teaching, of results, of evaluation
 - b. Physical equipment: ordinary appearance, average or less than average good health, lack of energy
 - c. Personal equipment: ordinary appearance, lack of poise, enthusiasm, good judgment, open-mindedness, and many other traits; lack of ambition
 - d. Social equipment: lack of ability and willingness to cooperate, to adapt oneself, to be considerate, and many other items.
 - e. Intellectual equipment: ordinary or less native ability, poor cultural background, narrow interests, poor general information, lack of interest in world affairs, etc.
- D. *Inadequate understanding by parents* (on all economic levels) of principles of child care and rearing, of human motivations, controls of behavior, etc.
1. Harsh, imposed, authoritarian discipline, or
 2. Over-protection and coddling
 3. Failure to participate in and guide children's leisure-time activities, reading, radio-listening, movie-going, choice of companions, etc.
 4. Failure to give security through the above-mentioned factors plus inconsistent discipline, guidance, indulgence, through lack of protection from adult tensions, problems, quarrels, etc.
 5. Failure in broken homes to protect children from the particular emotional strains involved in this situation
 6. Exposure to racial, national, religious, and political prejudices
- E. *Presence in our society of large immigrant populations*
1. Bi-lingualism in many homes
 2. Double load on pupil if required to attend native language or religious school in addition to public

The implications of the primary causes of failure. The foregoing list of primary general causes could be broken down into literally hundreds of implications, more immediate causes, and symptoms. The general causes and their implications could be still further supplemented through listing of hundreds of causes of failure which are relevant to learning within special subjects or areas. A complete listing of specific causes of failure would fill a small volume.

Before passing to an examination of the types of pupil attitudes and behavior which teachers commonly regard as causes of failure, we may examine further implications of the primary causes with a view to clarifying the relation between these causes and the pupil's attitudes and symptoms. The following paragraph, still on the level of generalization, points directly at the immediate causes of failure and at symptoms of failure.

The various primary causes in the learner, in the school, in the home, and in the community, operating in conjunction, place pupils often in physical settings for learning which are uninviting and uninspiring, which in turn produce attitudes of indifference to, lack of respect for, and even antagonism to, education and its aims. Interest and energy are affected by unfavorable light, heat, and ventilation. The curriculums and text materials are often dull and uninteresting, irrelevant to the life interests and activities of the learners, unsuited to the needs of the community. Individual differences are often not recognized, even disregarded; materials are not adapted to the levels of maturity within a given group; unattainable standards combined with lack of recognition for effort—all combine to discourage and antagonize the learner. An undemocratic administration aimed at business "efficiency" instead of at the development of the learners inevitably produces conditions inimical to learning and is thus productive of failure. Traditional teaching methods based on erroneous conceptions produce thousands of specific errors in technique which are actual causes of failure—numberless errors of motivation, questioning, assigning, initiating units, developing study habits, evaluating, diagnosing, disciplining, giving marks and rewards, promoting, and so through the entire area covered by this volume and by many volumes on the psychology of learning. Many traditional teachers and many parents are but "babes in the woods" in regard to their knowledge of human motivation and of methods of controlling conduct. These things are the actual causes of failure since they produce the pupil attitudes and behaviors which are usually listed as causes. Again, scores of immediate causes and symptoms of failure can be traced to undesirable teacher personality and manner. Unsympathetic attitudes, lack of understanding and of interest in pupil problems, harsh, unyielding insistence on certain rigmaroles and prerogatives, upon "respect" and order; sarcasm, ridicule, bullying, and threatening all appear here. The seriously frustrated personality actually engages in punishments and requirements so unreasonable as to border on the sadistic.

The sharp focus on the school and the learning situation does not mean that the school and the teachers are solely to blame. Many and various primary causes contribute. All the unfavorable conditions and attitudes within home and neighborhood, together with the more basic conditions within the total community, contribute mightily.

The secondary causes and symptoms of failure. Teachers and parents

naturally see the more immediate situation, sometimes to the neglect of the remote and more important aspects. To attack a case of failure as if it had no background will not only not cure failure, it will very likely aggravate it by enhancing the cumulative effect of the neglected primary cause. First steps, however, must be taken within a given, immediate, and specific situation. Therefore, it is important to know and to identify the items which teachers regard as important. The problem then becomes the training of teachers to remedy these immediate items with due regard for the underlying, more fundamental factors.

The Immediate Causes (often only Symptoms) of Failure
(As commonly recognized and listed by teachers)

I. *Resident in the pupil*

A. *Mental inadequacies; obstacles to mental functioning*

1. Genuine lack of mental ability
2. Seeming lack of mental ability; more truly, lack of interest, indifference, lack of effort, active antagonism, lack of energy owing to malnutrition or overwork, lack of mastery of fundamentals and study habits
3. Immaturity or unreadiness (to be clearly distinguished from the two listed above)

B. *Physical inadequacies*

1. Limited functioning of sense organs, vocal apparatus, etc.
2. Ill health

C. *Emotional inadequacies*

1. Insecurity
2. Maladjustments to persons, situations, requirements
3. Complexes, phobias, presence of escape mechanisms
4. Immaturity

D. *Detrimental general attitudes and habits* (fragmentary and illustrative listing only)

1. Indifference to and lack of interest in school work
2. Active antagonism to school work; refusal to study and learn
3. Discouragement and failure to persist
4. Non-coöperation, avoidance of responsibility
5. Laziness, so-called
6. Truancy, irregular attendance
7. "Nervousness" (variously interpreted)

E. *Non-possession of elementary skills*

1. Inability to read, to compute; lack of background in subjects which are of necessity sequential; inability to speak English
2. Ignorance of study skills and work habits

II. *Resident in the educational situation and community*

Teachers ordinarily see the chief causes of failure as lying in the pupil's abilities, attitudes, and habits. Many of them, however, look beyond this and can see some of the more remote causes and clearly attribute failure to them.

A. *Uniform curriculums, texts and materials unsuited to levels of maturity and to individual differences*

- B. Inappropriate administrative standards and practices
- C. Unduly heavy teaching load, too large classes, outside duties, etc.
- D. Too frequent transfers, double promotions, etc.
- E. Poor teaching in the previous grades
- F. Poor home conditions
- G. Overwork outside school hours or too many extra-curricular activities
- H. Malnutrition

A Few General Principles of Guidance

- I. The cause of failure to learn in the case of any given pupil is far from simple. A complex tangle of causes lies behind the immediate causes and symptoms.
- II. Immediate causes and symptoms are often seriously misleading. Treatment of the pupil based on the naive interpretation of immediate data may be seriously disastrous.
- III. Many of the primary causes of failure are beyond the teachers' control. This does not mean that nothing can be done but that the cure of these necessitates a long-time program aimed at changing public opinion and the system of education.
- IV. Detailed programs of diagnosis and remedial procedure are a necessary and normal part of all teaching situations as at present constituted.
- V. Programs designed to cure immediate causes and symptoms will be valuable only in so far as they take into account the hidden primary causes.

EXERCISES AND REPORTS

1. Describe the general features of the policy of promotion operative in the system where you teach, in the schools you attended, if you are not yet teaching. Explain as well as you can the probable assumptions behind the system.
2. Describe briefly the operation of any continuous-progress plan with which you may have had contact.
3. Marshal a series of arguments for and against continuous-progress as a policy. Use all that you have learned in this volume, not merely this brief section. Supplement if you wish through reference to a few current periodical articles.
4. Report briefly upon any specific case in which it seemed clear to you that a given remote primary cause was at the root of learning difficulty whether or not recognized by the teacher.
5. Individuals or small committees may make one or more reports to the class on the following topics or other similar ones and based upon current periodical articles. (Contrary to the situation among the textbooks, which slight the causes of failure seriously, the professional periodicals contain a wealth of specific material.)
 - a. Why teachers say they fail pupils
 - b. Why pupils say they fail
 - c. Summary of studies on the results of failure and non-promotion versus results of promotion or change of group
 - d. Summary of studies on the relation between failure or success and the general growth and behavior of the learner; between failure or success and truancy, personality maladjustment, delinquency
 - e. Summary of studies of the threat of failure used as motivation for learning, or for securing good behavior
 (Suggest any others which appeal to instructor or student.)

6. What do you think is meant by the expression applied to some pupils, "school dull and life bright"? How do you account for the situation indicated by the statement?

7. Secure from teachers in coöperating schools a statement of causes of failure for two or three or more specific cases in their classes. Analyze to see how many of the given causes are probably symptoms or secondary causes.

8. Teachers rarely list as causes of failures.

a. Material in textbook beyond understanding of pupil

b. Vocabulary of book or teacher too difficult for pupil

c. Teacher was unable to arouse interest of pupil in valuable and desirable learning materials

d. Teacher had insufficient knowledge of nature of mental processes of pupil

Explain why this is probably so, but do not stop with the obvious first answer.

READINGS

The periodical literature, as noted above, is rich in materials on cause and cure of failure; the general textbooks are strikingly meager. Reading of current articles should be required here in addition to that suggested by reports above.

CASWELL, Hollis L., *Education in the Elementary School* (New York, American Book Co., 1942). Chapter 11, excellent specific summary

MCGAUGHY, J. R., *An Evaluation of the Elementary School* (Indianapolis, Ind., Bobbs-Merrill Company, 1937), pp. 291-297. Excellent abbreviated summary.

OTTO, Henry J., *Elementary School Organization and Administration* (New York, D. Appleton-Century Company, Inc., 1934), Chap. 6, pp. 241-252, specifically on failure.

Review of Educational Research. Quarterly. Note chapters from time to time on "School Progress" or related topics.

ROSS, C. C., *Measurements in Today's Schools* (New York, Prentice-Hall, Inc., 1941). Chapter 15 on classification and promotion is very good.

SAUNDERS, Carleton M., *Promotion or Failure* (New York, Teachers College, Bureau of Publications, 1941). Thoroughly muddled organization and badly written. Several valuable points may be secured through analysis and rearranging of original statements. Very good bibliography.

UMSTATT, J. G., *Secondary School Teaching* (Boston, Ginn and Company, 1937), pp. 47-100. Different from most references in that it makes the valuable connection between diagnosis, remedial teaching and general guidance.

SECTION 2

THE TECHNIQUES OF DIAGNOSIS

PRELIMINARY DISCUSSION QUESTIONS

1. Have you ever failed a subject and later passed it with reasonable ease? If so, were you at the time aware of the factors which caused the failure and success? Or did you later become aware? Describe as explicitly as possible.

2. Recall specifically some difficulties with learning which you had in elementary or secondary school or college. If your teachers noted and diagnosed your difficulty, describe what was done. If you had to solve the difficulty yourself, describe what you did and why. Estimate the proportion of times that teachers did and did not diagnose.

3. Can you describe actual cases from your own observation in which, as far

as you could see, the learner was materially aided or seriously handicapped by the home environment? By a given personal trait? By any other factor extraneous to the school?

4. It is commonly believed that an "only child" differs significantly from other children in certain important characteristics. Disregarding for the moment the validity of this belief, explain why it is held by many persons. What has this to do with our problem here?

5. Certain educational authorities say that the failure of a pupil is actually the failure of the school. Is this partially, wholly, or not at all true?

The influx into the school of "all the children of all the people" profoundly changed the attitude of the school toward the pupil. Each child in a democracy is entitled to the opportunity to develop to the limit of his capacities. The effects of failure to grow or to learn are disastrous for both individual and society.

The discovery that many items seemingly far removed in both time and space from the immediate classroom situation do definitely affect learning for good or ill also contributed to the changing educational process. Finally, it was discovered that thousands of pupils had no clear understanding of how to study, how to learn, how to develop work habits. Thousands of teachers knew no more about these things than did the pupils, hence could be of little help. One result has been the increasing attention to diagnosis of the causes of failure and to remedial measures.

General levels of diagnosis. Analysis usually begins with a survey to determine the general status of a class group. Specialized techniques are then used to determine the specific difficulties of individual pupils or of small sections within the total group. One acceptable outline of procedures would be:

1. *General diagnosis*

The instruments are standard tests and practically all of the techniques listed in the chapter on Evaluation.

2. *Analytic diagnosis*

The instruments are diagnostic tests prepared for this purpose.

3. *Psychological diagnosis through*

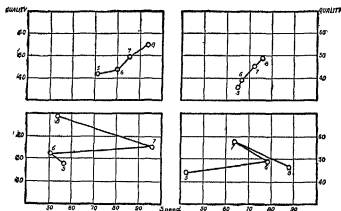
- a. Controlled observation as outlined in the chapter on Evaluation
- b. Analysis of written work
- c. Analysis of oral responses and accounts of procedures
- d. Analysis of objective records of various types
- e. Interviews
- f. Laboratory and clinical methods
- g. Case studies

General diagnosis. Typical standard tests or test batteries are the chief instruments used. Check lists, rating scales, and observational records are often utilized. A survey or overview is made in order to secure a general picture of class status. Items for more detailed study may be then selected.

Survey testing reveals the status of a given class in relation to certain norms, usually the medians and averages for standard tests. The average score for the group and the distribution of scores within the group are both important. A given class may exhibit any of several combinations of these factors. The score of the class in arithmetic, for instance, may be below standard for rate but up to or above standard for accuracy. The individual scores may be scattered widely or grouped closely about the norms. Scores in reading may show any number of variations from class to class as among word meaning, sentence meaning, paragraph meaning, (all aspects of comprehension) and rate of reading. Organization and critical analysis of what is read enter into advanced tests and add other possible variations.

For all common situations revealed, general causes and cures can be suggested. All types of good and poor teaching, and all combinations of other primary causes as outlined in Section I may be involved. Analysis of all pertinent facts is necessary. The procedure is part of the course on tests and measurements and is not included here.

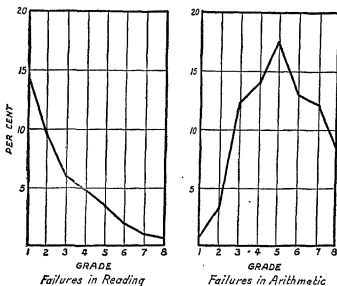
The differing situations from grade to grade within a school and from school to school can be shown by combining the scores from various rooms and buildings into one graph. The diagram below shows the facts concerning speed and quality of handwriting scores in four elementary schools. Great differences in certain factors affecting learning are clearly indicated. Students may advance tentative explanations of the situations shown.



AVERAGE QUALITY AND AVERAGE SPEED OF HANDWRITING OF PUPILS OF THE FOUR UPPER GRADES IN FOUR SCHOOLS

General diagnosis may also show that the course of study is poorly arranged and thus interferes with learning. The diagrams on page 467 show the percentage of failures in reading and arithmetic in the elementary schools of a large city. The results in reading indicate the pupils are normal and the results are in accord with expectancy. The results in

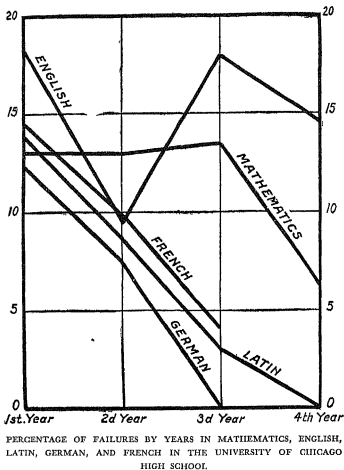
arithmetic arouse the suspicion that the materials are not properly aligned with the maturities of the learners. The same pupils and the same teachers who produced the satisfactory results in reading are included. The reorganization of the course in arithmetic and the use of better texts is indicated.



RECORD OF FAILURES BY GRADES IN CLEVELAND, 1914

The same general situation is illustrated on the high-school level by the diagram on page 468. The situation in languages is evidently normal as to adjustment between pupil and subject matter and as to teacher purpose. The mathematics situation and the erratic results in English admit of several interpretations which the class may attempt to make at this point. Final diagnosis would necessitate further data than here presented.

Analytic diagnosis. The elementary processes in arithmetic, reading, and handwriting which seem simple are in reality fairly complex. Adding a column of two or three figures is not the same process as adding one of eight or ten figures. From three to ten different processes may appear in simple addition, subtraction, multiplication, and division. One-hundred-fourteen different kinds of errors may appear in working decimals. Many a pupil has been failed in "arithmetic" when actually he failed only in subtraction. Failure in subtraction may be due in turn to difficulty with only a few number combinations. Each person has his idiosyncrasies in the matter of handling number combinations. One child sent to a clinic for diagnosis was said to be unable to do arithmetic, making many mistakes in each paper. One paper, on which the teacher had marked thirty-two mistakes, turned out to have only five different



mistakes, each one made approximately six times. The child's trouble was not "arithmetic" but weakness in a few specific number combinations.

The differentiation between oral and silent reading was made in comparatively recent times. Many teachers are still unaware of the differences between them and that several different processes are used in silent reading alone. Handwriting has been analyzed by a number of scholars into its elements showing that the composite, a written word, involves a number of skills on the part of the pupil.

The second phase of diagnosis then is to select those pupils who have special weaknesses and to apply remedial measures. Many tests are now available specifically for diagnosis in the typical subjects of the curriculum, arithmetic, reading, writing, language, science, social studies, algebra, etc. Many of the modern instructional materials, texts, and workbooks include tests for diagnostic purposes. Complete lists of these

tests may be found in professional or commercial catalogues and in texts on measurements.

The same type of diagnosis can be made for the far more important learnings in the form of attitudes, understandings, and values through use of the check lists and behavior records discussed in the previous chapters. Some authorities recommend securing the emotional reactions and observing the behavior of all pupils subjected to a diagnostic test. The foregoing emphasis upon the diagnosis of learnings closely connected with formal subject matter should not overshadow these other learning outcomes. Diagnosing the difficulties with the latter is far more complex than diagnosing weakness in skill learnings.

The Iowa Silent Reading Tests will be used here to illustrate the general form of diagnostic tests.

IOWA SILENT READING TESTS

Comprehension

1. Paragraph meaning
 - A. Social science
 - B. Literature
 - C. Science
2. Word meaning: subject-matter vocabulary
 - A. Social science
 - B. Science
 - C. Mathematics
 - D. English
3. Sentence comprehension

Organization

4. Sentence
5. Paragraph
 - A. Selection of central idea
 - B. Outlining
 - C. Organization of paragraph

Location

6. Ability to use the index
 - A. Use of the index
 - B. Selection of key words
 - C. Alphabetizing

Total Comprehension Score

Rate

7. Silent reading rate ²

A number of specific reading skills as exercised on three different kinds of subject matter—social science, literature, and science—are tested. The untrained teacher may not recognize all these as reading skills but they are nonetheless.

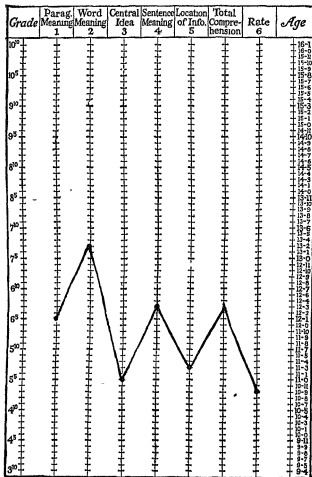
The results of such a test, when thrown into profile form, present to the teacher a clear and simple picture of the status of the learner.

² Published by The World Book Co., Yonkers-on-Hudson, N. Y.

Name... *John R.* Gr. *6* Age *12* Date... *May 12, 1938*
 Teacher... *Mills* School... *H.* City... *Denver* State *N.Y.*

INDIVIDUAL PROFILE CHART

IOWA SILENT READING TESTS: ELEMENTARY TEST



PROFILE CHART FOR SILENT READING ACHIEVEMENT

(By permission of the World Book Co., Yonkers-on-Hudson, N. Y.)

Psychological diagnosis. The diagnostic tests will reveal the typical classes and number of errors made by the pupil. The next step is to determine very specifically the exact nature and causes of these weaknesses. The process is the close observation and detailed analysis of the pupil's behavior or processes. The instruments and techniques are not as precise as the tests heretofore discussed, but they often yield more important

data. This is particularly true if the teacher knows the relationship between certain kinds of behavior and certain causes of failure, and knows how to arrange situations in which situation and reaction can be studied together.

1. *Controlled observation.* The previous chapter on evaluation made clear that many important learning outcomes cannot be measured by typical tests. Evidence must be gathered through observation of behavior. This is as true for processes of learning as for products. The causes of failure can be inferred safely from the accurate and detailed behavior records mentioned previously. The numerous check lists, rating scales, observation records, and anecdotal records are all useful in this connection.

Several lists of incorrect procedures, faulty study habits, and the like have been compiled to aid in watching for causes of failure. These are available on elementary, secondary, and college level. Vocalization and lip movement in reading, counting (beyond the level where crutches are legitimate) in arithmetic, incorrect use of materials and apparatus are easily observed. The number and kind of contributions made by pupils to the on-going class activity are easily observed and when analyzed may lead to important causes of poor learning. This type of observation can be applied, as indicated previously, to the playground and community activities of the children.

2. *Analysis of written work.* The analysis of errors revealed in general by diagnostic tests is aided by the use of lists of common and continuing errors. Errors listed may vary from those of minor consequence to those indicative of basic weakness of some sort. Random, unintelligent misspellings are a much more serious symptom of disability than mere phonetic misspellings. For instance, one boy misspelled "lieutenant" five times and in four different ways, with the correct spelling in front of him all the time!

The list of errors in spelling compiled by Book and Harter² will illustrate the technique:

Errors Owing to Inadequate Mental Control Over Known Words

<i>Type of Error</i>	<i>Illustration</i>
** 1. Omission	<i>the for they</i>
2. Anticipation	<i>conserstation for conversation</i>
* 3. Repeating or adding a letter	<i>theeth for teeth</i>
* 4. Transposition	<i>esaily for easily</i>
** 5. Carelessness	<i>surily for surely</i>
6. Doubling wrong letter	<i>speel for spell</i>
7. Interference	<i>swap for soap</i>
8. Forgetting the word	<i>Arthur for author</i>
9. Substitution	<i>dod for dog</i>

² W. F. Book and A. S. Harter, "Mistakes Which Children Make in Spelling," *Journal of Educational Research*, Vol. 19, 1929, pp. 105-118.

Errors in Words Not Learned

** 1. Phonetic spelling	<i>Wensday</i>
2. Mispronunciation	<i>chimley</i>
3. Alternatives	<i>ei or ie confused</i>
4. Doubling	<i>Hellen for Helen</i>
5. Non-doubling	<i>galons for gallons</i>
6. Substitution of similar letters and syllables	<i>goiny for going</i>
7. Homonyms	<i>bare for bear</i>
* 8. Ignorance of word	<i>parell for parallel</i>
* 9. Failure to hear or perceive word correctly	<i>bureau for mural</i>

Elements double-starred are especially troublesome in every grade, and those single-starred are second in frequency. By means of an analysis such as this the teacher and the older pupil himself can classify errors for specific remediation.

3. *Analysis of Oral Responses.* A very important technique is to sit down with a pupil and ask him to work aloud. The teacher tabulates what happens while the pupil repeats aloud his mental processes, reads aloud, or describes how he thinks as he does the work. Faulty, round-about, or definitely incorrect processes come to light which cannot be discovered in any other way. Extensive applications of this technique by Buswell,⁴ Brueckner,⁵ and others have revealed a literally astonishing amount of curious mental procedure in the working of examples in arithmetic. The table on page 473 lists just those found in the subtraction of whole numbers.

4. *Analysis of objective records:* The cumulative records mentioned several times and described in Chapter 20 supply several types of data which may be scrutinized. The chief record will be the age-grade-progress of the pupil, together with the reasons noted for retardations, accelerations, etc. Records of attendance and of changing residence, are important. The health history is often very revealing. Notations of extracurricular achievements, of employment, or of general outside activities are useful. The socio-economic ratings of home and community should be included here.

Attention studies and time distribution studies may be made especially at given times to supplement the permanent record, though this, of course, overlaps with the controlled observation technique. Pupils may be asked to produce a record of their study programs or analyses of distribution of total time which then constitute good objective records for analysis.

5. *The interview as a diagnostic technique.* Interviews may be necessary in some cases to supplement the techniques just described. The

⁴ Guy T. Buswell, with the cooperation of Lenore John, *Diagnostic Studies in Arithmetic*, Supplementary Educational Monograph No. 30 (Chicago, University of Chicago Press, 1926).

⁵ Leo J. Brueckner, *Diagnostic and Remedial Teaching in Arithmetic* (Philadelphia, John C. Winston Co., 1930).

FREQUENCY OF OCCURRENCE OF THE MOST COMMON FAULTS*
IN SUBTRACTION OF WHOLE NUMBERS

Errors	Grades				Total
	III	IV	V	VI	
1. Errors in Combinations	62	75	69	40	246
2. Borrowing					
a. Did not allow for having borrowed	19	50	57	36	162
b. Errors due to zero in minuend	25	39	26	15	105
c. Subtracted minuend from subtrahend	47	33	12	4	96
d. Failed to borrow; gave zero as answer	21	20	14	4	59
e. Deducted in minuend when no borrowing was necessary	2	8	10	5	25
f. Deducted two from minuend after borrowing	1	5	8	6	20
g. Increased minuend digit after borrowing	2	2	6	2	12
h. Deducted all borrowed numbers from lefthand digit	1	0	1	0	2
3. Counting	43	44	39	10	136
4. Faulty Procedures					
a. Said example backward	21	38	29	12	100
b. Added instead of subtracted	18	9	19	1	47
c. Used same digit in two columns	18	15	3	4	40
d. Omitted a column	9	13	8	5	35
e. Split numbers	7	5	10	2	24
f. Ignored a digit	12	6	2	3	23
g. Used minuend or subtrahend as remainder	10	6	2	0	18
h. Began at left column	2	0	1	0	3
5. Lapses, etc.					
a. Derived unknown from known	12	9	13	3	37
b. Error in reading	14	5	13	10	42
c. Error due to numbers in minuend and subtrahend being the same	1	5	10	3	19
d. Reversed digits in remainder	4	7	2	4	17
e. Confused process with division or multiplication	5	6	3	2	16
f. Skipped one or more decades	3	4	7	0	14
g. Based subtraction on multiplication combination	1	2	3	0	6
h. Error in writing answers	2	1	0	1	4
Total cases	84	109	109	70	372

* Adapted from Buswell and John, *Diagnostic Studies in Arithmetic*, Supplementary Monograph No. 30 (Chicago, University of Chicago Press, 1926).

examiner may be uncertain concerning the full or the exact implications of the data so far secured and wish to secure even more details and intimate information. The most important interviewee is the pupil himself. Interviews may be held also with parents and other members of the family, teachers, and other adults, and playmates.

The general purposes of interviews with the pupil are (a) to discover his beliefs and attitudes toward other persons with whom he must deal: parents and teachers, brothers, sisters, and playmates; (b) his interests, likes and dislikes, abilities and disabilities, (c) his individual methods of thinking, feeling, and acting. Interviewing parents and other adults is chiefly for the purpose of (a) learning about the kinds of adults who are

influencing the child; (b) discovering parental attitudes toward the child, his behavior, his talents or disabilities, and to discover, if possible, the pupil's attitudes toward these adults; (c) learning some of the general environmental influences which play upon the child; (d) discovering the parent's attitudes toward teachers and other children with whom the child lives and works, toward the conventions and situations within which he must work. Anything from the child's past history may be probed by means of the interview. Interviews with teachers are for the purpose of finding out (a) the teacher's estimates of the pupil's abilities, attitudes, and conduct; (b) teacher's attitudes toward this individual pupil, (c) teacher's attitudes toward racial, national, social, or economic groups and levels, (d) learning anything about the pupil's school record and present status which might be enlightening.

The average individual believes that interviewing is simple and that anyone can do it. "It is just conversation." On the contrary, interviewing either adults or children, particularly on personal matters, is a genuinely difficult task. Random discussion not only fails to produce positive data, it may very likely produce highly unreliable data. Careful preparation is necessary. A volume or two, and many separate chapters in other texts, are available devoted to the details of interviewing.⁶

An interviewer may well prepare in advance by:

1. Listing the specific information he desires to secure
2. Preparing a number of leading or pivotal questions around which to organize the sequence of the interview
3. Arranging these questions in as natural an order as he can determine in advance. Judgment will be refined by experience
4. Preparing necessary instructions, directions, or other guidance to be supplied to the person interviewed

The use of a formal interview blank makes it far less likely that important items will be overlooked than if a casual, conversational form be followed. The operation of the formal blank should be through easy conversation, however, in so far as possible. The purpose of an interview is to secure information specific and peculiar to a given person, hence, the examiner should depart from or supplement any formal outline he uses whenever his judgment indicates. The home-made, specially prepared outline is preferable. A good illustration of a general and inclusive blank for preliminary interviewing is that of Maller reproduced here.⁷

⁶ Explicit details concerning planning, initiating, and conducting interviews will be found in:

W. V. Bingham and B. V. Moore, *How to Interview* (New York, Harper & Bros., 1931).

P. M. Symonds, *Diagnosing Personality and Conduct* (New York, D. Appleton-Century Co., 1931).

Donald G. Patterson, Gwendolen G. Schneider, and Edmund G. Williamson, *Student Guidance Techniques* (New York, McGraw-Hill Book Co., 1938), pp 8-12.

⁷ Published by the Bureau of Publications, Teachers College, Columbia University, New York.

BACKGROUND

Name..... Age..... Height..... Weight.....
 Grade..... Father's occupation..... Nationality.....
 In what country was he born? How many brothers do you
 have?..... How many sisters?..... How many rooms are there in
 your home?..... Do you have a room for yourself? Do you
 have a radio in your home? A piano? An automobile?
 A telephone?..... About how many books are there in your home?.....
 Are you a member of a club?..... Name of club or clubs?.....
 Which school subject do you like most?
 Which least?..... Your favorite form of recreation?
 How often do you go to the movies?..... What kind of movies do
 you like best?..... Give an example
 Has any moving picture ever made you want to do something good?
 What, for example?
 Name of picture?.....
 Has any moving picture ever made you want to do something you should *not* do?
 What?
 Name of picture?.....
 Do you listen to the radio regularly?..... When
 What is your favorite program?.....
 Which program don't you like at all?
 Why? Has any program ever made you want to do
 something good?..... What, for example?.....
 Name of program?
 Has any program ever made you want to do something you should *not* do?.....
 What, for example?.....
 Name of program?.....
 Do you suffer frequently from headaches?..... Colds?
 Indigestion?..... Other illness? What occupation or vocation
 do you intend to follow?..... What occupation would you
 follow if you had your choice?..... What kind of books do you
 like best?..... Do you plan to go to college?.....
 Why?

General blanks will be supplemented with more specific inquiries directed at further details on any aspect of the pupil's background, interests, leisure-time activities, likes and dislikes, associates, neighborhood activities, etc., etc.

6. *Laboratory and clinical methods.* Laboratory tests and instruments are available in university clinics and at the central office of large city systems for the purpose of extremely detailed inquiry. Many significant factors and causes of poor learning are unearthed by the clinic which cannot be detected by the teacher or parent. Ordinarily, cases needing this type of analysis will be referred to clinics by the teacher. Details of procedure are omitted.

7. *Case studies.* An exhaustive study may be made of all factors involved in any one personality. Outlines for such detailed studies are found in specialized texts on diagnosis, on social work, and the like. Details of procedure are omitted, since teachers will not ordinarily be making extensive studies of this type.

Specialists available for diagnosis. Many cases need more detailed and more technical diagnosis than any teacher can give. Larger city systems provide the services of bureaus of research, of psychological and guidance clinics, of child centers. A few state departments provide traveling clinics to serve the small communities and rural areas. Teachers should be informed of all services available and call upon them freely.

Remedial programs. Remedial programs are extensive and specific to subjects or types of conduct. General principles are those of good teaching applied to special circumstances. Details of organization and technique are to be found in the special literature on remedial teaching within the special subject areas.

DISCUSSION QUESTIONS

1. What are some tentative diagnoses you might make for certain cases of failure by examining scholastic records (marks) in the light of intelligence scores? Use available school records or make up hypothetical cases. For instance, a student has
 - a. A high IQ and low grades in all subjects
 - b. A high IQ and low grades in one or two subjects only
2. Interpretations based upon marks and IQ scores alone can be only general and very tentative. Other information is essential.
 - a. What other factors could influence the two cases advanced?
 - b. How would you go about getting specified data necessary?
3. Interpret the diagrams on pages 466, 467, 468, and 470.
4. Individuals or small committees may report upon diagnostic tests by subject or by type of behavior being observed. Describe and show tests; describe method, giving and scoring, possible interpretations, aid given by manuals, etc.
5. The instructor may administer a diagnostic test or parts from two or three as a basis for discussion.

EXERCISES

1. Secure tables or graphs showing class results or individual profiles from the local training school or from any nearby coöperating schools. Make tentative general interpretations based on these data without consideration for the moment of other factors.

2. Observe a teacher using any of the techniques of psychological diagnosis, particularly analysis of written work, oral responses, or the interview. Summarize the procedure and results together with teacher comments and report to the class.

3. Wherever possible in local schools extend the observation in 2 to participation and assistance to the teacher. Summarize and report experiences.

4. Where possible in local schools, make an independent effort at psychological diagnosis of a case. Check your procedure and results with the regular teacher and report experiences to the class.

5. Experienced teachers may report any experiences with diagnostic procedures used in their regular work.

6. Individuals may report on the special services available in their own school systems.

7. Case-study accounts from local records or in the literature may be reported upon by individuals or small committees.

ADVANCED EXERCISES

1. Lists of specific errors in written work such as the one for spelling errors illustrated on pages 471-472 are available in most of the skill or fact subjects. Find two or more in the literature.

a. Make a critical summary report if two or more can be found in the same subject.

b. Construct one for your major subject, or for any area, if no good ones can be found.

2. Lists of specific symptoms of non-learning in given fields are available in the periodical literature, in texts on special methods, and in various yearbooks on learning or on special teaching. An excellent illustration is found on pages 281-283 of the *Thirty-Fourth Yearbook* of the National Society for the Study of Education, "Educational Diagnosis."

a. Search the literature for others in various subjects and report.

b. Construct a similar list for your major subject. (Note that if a skill subject is used, the categories will be similar to the illustrations in the *Yearbook* but the details within the categories will need to be evolved. In content subjects, both categories and explanatory material will differ from those used in skill subjects.)

3. If permission can be secured, select a pupil who needs attention and help. Some teachers will gladly assign one to you. Make a brief study of this pupil covering such time as is necessary to

a. Observe classroom performance in the light of a selected check list

b. Secure a few valuable anecdotal items

c. Analyze personality in terms of a selected check list

d. Interview the pupil

e. Analyze some of his school work with him

READINGS

BRUECKNER, Leo J., and MELBY, E. O., *Diagnostic and Remedial Teaching* (Boston, Houghton Mifflin Co., 1931).

Educational Diagnosis, Thirty-Fourth Yearbook of the National Society for the Study of Education (Bloomington, Ill., Public School Publishing Company, 1933).

HILDRETH, Gertrude, *Psychological Service for School Problems* (Yonkers-on-Hudson, N. Y., World Book Company, 1939).

Meeting the Needs of the Individual Child, Nineteenth Yearbook of the National Department of the Elementary School Principals (Washington, D. C., National Education Association, 1940).

Review of Educational Research. Quarterly summary published by American Educational Research Association. Most valuable source of current references.

ROSS, C. C., *Measurement in Today's Schools* (New York, Prentice-Hall, Inc., 1941), Chap. 13.

The Scientific Movement in Education, Part II of the *Thirty-Seventh Yearbook* of the National Society for the Study of Education (Bloomington, Ill., Public School Publishing Company, 1938).

Many specialized treatments of diagnostic procedure will be found in texts on the teaching of special subjects.

19

Marking and Reporting Progress

PRELIMINARY DISCUSSION QUESTIONS

1. What are the purposes of a marking system? List at least five or six as you see them now. What is probably the one chief purpose of marking?
2. If you had your choice, what system of marks would you prefer to be rated under: a percentage scale from 0-100 with passing at about 75? a series of letter grades, A, B, C, etc.? descriptive terms, *excellent, good, poor, etc.*?
 - a. Support with arguments your choice of a system.
 - b. Would you suggest some system not mentioned above?
3. State specifically and unequivocally what a mark of B or of 83 means in French. In Algebra. In Constitutional Law.
4. You have doubtless noted that marks vary from teacher to teacher and even sometimes with the same teacher.
 - a. Can you explain why this is so?
 - b. What suggestions might you make, without further study, for the reduction of these variations?
5. What are the merits and weaknesses of what students commonly call "stiff" marking and "easy" marking?
6. What seems to you, on the basis of your experience only, to be the chief weakness of any and all marking systems? (This question should not be answered quickly or superficially. Attention is directed to a fundamental educational issue amply discussed in previous chapters.)

An educational speaker is said to have remarked, "The school with its formal lifeless curriculum and its poor teaching methods has gotten into such a fix that a marking system had to be invented to make pupils work." This may have been an attempt at humor but it is not entirely humorous; a partial truth is too closely approximated for comfort. Whatever their exact origin, marks are too commonly used as extraneous motivations, either as rewards or as punishments. Threats based on marks are too common in many schools.

The problem of determining the pupil's mark or index of achievement brings into sharp relief again the two theories of education and of learning which have been contrasted throughout this volume. One theory sees education as the mastery of designated segments of subject matter. The segments are arranged in a series of grade levels. Marks are assigned largely on the basis of teacher judgment as to how well the materials have been retained. The other theory sees education as the progressive development of the personal-social-moral traits, understandings, abilities,

etc., of the learner. Marks, if given at all, are usually accompanied by descriptions of the pupil's actual achievement of functional learning outcomes. The logical outcome of this theory is to abandon marks and to substitute therefor descriptions of actual learning products and progress. Earlier chapters have discussed in some detail the serious detriment to education and to learning which results from substitution of a mark or symbol for true learning. Marks will be used, however, for a long time yet in traditional schools. Teachers need to know how to operate a fundamentally unsound device as sensibly as possible; the first section of this chapter will, therefore, present principles designed to improve the validity and reliability of marks. The second section will develop the newer practice of descriptive evaluations in terms of the new-type report card.

SECTION I

PRINCIPLES OF MARKING

Purposes of marking systems. Traditional schools use marking systems for various definite reasons:

1. To inform parents and pupils of the quality of work being done and of progress being made
2. To enable home and school to work together more effectively on the common problem of encouraging learning
3. To motivate or stimulate the pupil to continued or to greater effort
4. To furnish a simple system of administrative shorthand for routine purposes: classification, promotion transfer, certification to higher institutions, etc.
5. To supply data upon the basis of which analysis of local making practices, comparative studies between teachers and schools, etc., can be made

The first two are the important purposes. The third should be eliminated. Marks, prizes, and other symbols do unquestionably stimulate effort, but they tend to become ends. Detrimental learning products and processes do result, as set forth in detail in earlier chapters. The traditional school recognizes this in many instances and has attempted to set up descriptions of marks in terms of evidences of learning. Later pages illustrate the effort to describe learning and the symbol—each in terms of the other.

The fourth purpose of marking is losing some of its erstwhile prominence on account of the growing tendency of colleges to accept students not on the basis of marks but on the basis of recommendations from the principal, or composite recommendations from a school staff. The fifth purpose is administrative and will not concern the student until he has occasion to participate in a study of marks in a given situation.

Shortcomings of traditional systems. The chief objections to marks are (a) that they tend to become ends in themselves, and much worse, (b) that, in most instances, they are not indicative of learning at all. The key to improvement lies in (a) setting up descriptive standards to ac-

company each mark or symbol, and in (b) training teachers in the use of these standards. The logical outcome of increasing accurate descriptions in terms of learning is the abandonment of marks in favor of the descriptions themselves.

*The traditional percentage system still widely used is probably the poorest known method of marking. A petition recently presented in Boston demanding the return of the percentage system in a given high school bore five thousand signatures. The arguments were that the percentage system represented actual degrees of learning and gave pupils and parents definite information. Despite the naive faith of these petitioners—shared by many teachers—the percentage is the least exact, least objective, and least meaningful of all known systems. Parents and teachers are completely deceived.

Parents and teachers are deceived, first, by the seeming precision inherent in the use of numbers. The fundamental nature of a true percentage system is completely overlooked by most persons advocating it for school use. Percentage can be used legitimately only when based upon an actual known quantity. This is an obvious impossibility in marking the growth and development, or even the limited learning responses of the pupil. What does 83 or 79 mean in arithmetic? Does it mean that the pupil has solved (a) 83 or 79 per cent of all possible life problems in arithmetic, (b) 83 or 79 per cent of the problems included in a particular textbook, (c) 83 or 79 per cent of the limited and specific lists of problems handed out by the teacher and themselves fragments of larger lists? A percentage mark cannot withstand critical inquiry; that it means just nothing at all in terms of learning can be shown with ease. A percentage mark, however, when set down attains stability and a finality in the minds of uncritical individuals.

The teacher falls naturally and inevitably into another error based upon failure to understand the nature of percentage. She may average marks given on different items into a total grade for a diverse and complex learning situation. We saw in earlier pages how a student might secure a mark of 90 per cent on one phase of grammar, 50 per cent on another, and receive a final passing grade of 70 per cent for the whole subject. A good grade on one phase of the subject here compensates for clear-cut serious failure on another item. This is a pure absurdity. Passing marks are attained by many pupils regularly in subjects and for learnings of which the pupil may be in part completely ignorant. Averaging per cents for different parts of a subject or for different types of learning makes this inevitable.

The second element of deception is hinted in the preceding sentences. Desirable learning outcomes cannot be marked by per cents or numbers of any kind since they are not mathematical quantities. Understandings, attitudes, appreciations, and many pupil abilities cannot possibly be indicated except through descriptions of appropriate be-

havior. An exaggerated illustration has been based upon one of the Beatitudes: Blessed be the pure in heart for they shall see God. Purity of heart is clearly a desirable attitude, appreciation, or value to be developed in or out of school. How shall we grade pupil progress? Is he 90 per cent pure in heart? If he is 90 per cent pure, is that pure at all? How pure must he be to pass? Will 99 $\frac{44}{100}$ be demanded or will 70 per cent purity do? The trivial, factual, measurable outcomes of education alone can be measured, and even there the measurement is a false one. Stress on percentage marks does actually prevent the development of the more important aspects of pupil growth and development. This fact has long been recognized by alert traditional educators and effort has been made to develop descriptive standards to go with the per cents (or other symbols) which will bridge the gap between symbol and true learning.

Educators who are heard to agonize over choosing a valedictorian or a scholarship candidate from among students who average 97.6, 97.5, and 97.55 supply evidence of their complete lack of understanding of the nature of learning, both process and product.

The use of letter or word symbols, *A, B, C, excellent, good*, emerged partly to alleviate the evils of the percentage system but cannot wholly succeed since again the symbol is not inherently related to true learning outcomes. Certain die-hard administrators in changing to letter marks required the teachers to base them upon percentage grades for recitations, examinations, papers, etc.! Certain other systems have appeared in the country, H, S, M, U, for honor, superior, medium, and unsatisfactory; I, II, III, IV, and V; Pass and Fail; Satisfactory and Unsatisfactory. It is generally agreed that such symbols as average deviations or sigmas, percentile, deciles, and the like are of little use with parents and average teachers. These are better used in research and in detailed diagnosis by specialists.

Administrators, teachers, and parents operating under any marking system with *undescribed symbols* need give no thought to the differences in efficiency between systems, nor to the possibility of changing systems. All such systems are about equally useless for educational purposes even though they may be falsely meaningful to all concerned. But, as stated earlier, marks must be used in many schools for some time to come. Can the use of marks be improved? Undoubtedly. Serious obstacles exist in the form of stereotyped thinking about learning and marks, traditional mechanisms, administrative demands, and modes of thought based thereon. Better traditional schools, however, have been making progress for some time.

Essentials of a sound marking system. The *chief* essential in a good marking system has already been indicated: the symbol must be clearly defined in terms of evidences of the learning product being marked. The *second* essential is that provision must be made for compiling and using

extensive, detailed data which are, as far as human judgment can determine, reliable evidences of possession or lack of the learning product under consideration. A *third* essential is that misleading extraneous items be excluded from the determination of that mark.

Defining the symbols. Any system of symbols can be defined clearly enough to improve marking. The letter or word system, however, even when defined are likely to lead teachers eventually back to the errors of the traditional percentage system. Various attempts have been made to substitute new symbols which are free from traditional associations and which are selected to have some relation, however attenuated, with the learning. Some high schools for instance use *R*, meaning "recommended for college or equivalent"; *S*, Satisfactory or acceptable for a Diploma of Graduation; *Cc*, meaning a Certificate of Completion will be issued; *N*, for needs to improve, no credit granted. The symbol and its significance are clearer, but no progress toward relating the symbol to varied desirable learnings has been made. The University of Chicago high school operating under the Morrison "mastery" concept gave a grade of *M* for mastery of designated learning products; an *N* was added giving *MN* if sustained interest was indicated; an *R* was added for resourcefulness or ability to carry on self-dependently. Learning outcomes in this school were defined in terms of desirable understandings, attitude, etc., so that symbol and learning approached each other.

The writer has developed with his students over the years a descriptive scale for use in college classes which bases marks upon the presence of certain selected symptoms and evidences of learning. The students know from the conduct of the course and from explicit discussion of the issues involved that the desired outcomes of the course are certain understandings or principles, certain attitudes toward teaching, certain mental skills. They know also particularly from analysis of the material here presented in Chapters 17 and 18 that certain behaviors are reasonably valid evidences of learning, and that these behaviors cannot be simulated or faked. It is explained that the marking scale is a compromise between an ideal but voluminous scheme and the necessities which demand a compact, practical, but defensible scheme. Certain symptomatic behaviors indicative in general of the desired learnings have been selected from the great number available and made into a scale. Differentiation between grades is made in terms of frequency of appearance and skill in the use of the designated evidences. The scale is placed in the hands of the students and analyzed. In some courses the instructor has developed a scale *de novo* with the class. Some of the terms used are open to differing interpretations, but with careful preliminary analysis and definition, fair-minded instructors and students can achieve not only agreement upon the scale but astonishing agreement in determining marks. The scale contains twelve points, the various levels of which are designated by underlined key words.

A Suggested Descriptive Marking Scheme

(Developed by the author with the assistance of many groups of students.)

Part of the evidence upon which a mark rests is objective and clear to all observers; part of it is subjective and must rest upon the instructor's judgment. This gives rise to differences of opinion in some cases, between the class and the instructor, as to the accuracy of the mark. In an effort to make a standard of marking as explicit as possible, the following is suggested:

To Receive a D Mark a Student Should

1. Answer readily and accurately practically all study questions based on the text or references which are asked him during the course
2. Turn in on time and in acceptable form all written papers based upon text or reference material, or interpretations thereof
3. Recall readily facts from previous discussions and apply them to present questions
4. Be able to derive the concepts, principles, or beliefs which are based upon a given unit of material, as shown by his ability
 - a. To state them in clear-cut fashion
 - b. To use them in solving new problems depending on their use
5. Volunteer to answer a *few* of the class questions
6. Follow the discussion of the class, volunteering *occasionally*
 - a. To supplement an inadequate recitation
 - b. To criticize an inaccurate recitation
 - c. Or to call for further explanation or interpretation if necessary
7. Make a *few* original contributions to the discussion through
 - a. Personal interpretations or illustrations?
 - b. References to newspaper or magazine reading
8. Be able to summarize *at least a part* of the assigned material in *simple, brief, and orderly* manner, manifesting some discrimination between major and minor points; stated conversely, *avoid* irrelevancy or confusion or non-continuous discussion
9. Be able to answer a *few* judgment questions accurately. Answers should be at least *continuous*.
10. Recognize general nature of suspended judgment; *avoid* dogmatic or stubborn insistence on statements.

11.

12.

To Receive a C Mark a Student Should

1. Same as for D
2. Same as for D
3. Same as for D
4. Same as for D
5. Volunteer to answer *many* of the class questions
6. Follow the discussion of the class, *often* volunteering
 - a. To supplement an inadequate recitation
 - b. To criticize an inaccurate recitation
 - c. Or to call for further explanation or interpretation if necessary
7. Make *many* original contributions to the discussion through
 - a. Personal interpretations or illustrations
 - b. References to newspaper or magazine reading
8. Be able to summarize *readily most* of the assigned material; to present in

- simple, brief, and orderly manner an adequate discussion of points, with good discrimination between major and minor*
9. Be able to answer *many* of the judgment questions accurately, and with *some* insight into issues involved. Answers should be *organized and coherent*, with relative value of points *well discriminated*.
 10. Manifest suspended judgment, recognition of the necessity of reliable data, willingness to modify beliefs when confronted with irrefutable facts in *most of the important issues*
 11. Raise a *few* concisely worded, intelligent questions concerning issues under discussion; open the discussion of these questions so that the class can carry on; show some discrimination in accepting or rejecting suggestions, illustrations, data or conclusions
 12. Carry on for a *few* problems genuine self-initiated work apart from the requirements of the instructor—reading, observation, experiment, a written paper on a problem or problems which may attract the interest

To Receive a B Mark a Student Should

1. Same as for D
2. Same as for D
3. Same as for D
4. Same as for D
5. Volunteer to answer a *very large number* of the class questions
6. Follow the discussion of class closely, volunteering *immediately*
 - a. To supplement an inadequate recitation
 - b. To criticize an inaccurate recitation
 - c. Or to call for further explanation or interpretation if necessary
7. Make a *very large number* of original contributions to the discussion through
 - a. Personal interpretations or illustrations
 - b. References to newspaper or magazine reading
8. Be able to summarize in *concise, effective* manner the assigned material; to present a *coherent, continued* discussion in which *nearly all* major and minor points are clearly *discriminated*
9. Be able to answer *most* judgment questions accurately, with *intelligent* insight into the issues involved. Answers should be *organized and coherent*, with relative values of points *well discriminated*.
10. *Usually manifest* suspended judgment, recognition of the necessity of reliable data, willingness to modify beliefs when confronted with irrefutable facts
11. Raise a *very large number* of concisely worded, intelligent questions concerning the issues under discussion; open the discussion on these questions *adequately*; show keen discrimination in accepting or rejecting suggestions, illustrations, data or conclusions
12. Carry on *many* genuine self-initiated activities apart from the requirements of the instructor—reading, observation, experiment, a written paper on a problem or problems which may attract the interest

To Receive an A Mark a Student Should

1. Same as for D
2. Same as for D
3. Same as for D
4. Same as for D

5. Same as for B
6. Same as for B
7. Same as for B
8. Be able to summarize in *original, striking and effective* manner the assigned material; to present a *coherent, continued* discussion in which major and minor points are clearly *discriminated*, that is, in which the main points are supported by the subsidiary facts
9. Be able to answer *practically* all judgment questions accurately and with *unusual* insight into the issues involved. Answers should be *organized and coherent*, with relative value of points clearly *discriminated* as in previous points
10. *Clearly and continuously* manifest suspended judgment, recognition of the necessity of reliable data, willingness to modify beliefs when confronted with irrefutable facts
11. Raise *constantly* concisely worded, intelligent questions concerning the issues under discussion; open the discussion on these questions *adequately*; show *keen* discrimination in accepting or rejecting suggestions, illustrations, data, or conclusions
12. Carry on rather *continuously* genuine self-initiated work apart from the requirements of the instructor—reading, observation, experiment, a written paper on a problem or problems which may attract the interest

Similar schemes are to be found in many high schools. The chart on pages 488-489 is from a union high school in California.

The following paragraphs are from the scale used in the Washington Junior High School in Rochester, N. Y.

A Pupil (95-100 Per Cent, Superior Work)

One (1) whose work consistently shows an intelligent comprehension of the subject matter through his ability to retain facts and principles learned; (2) who is able to apply subject matter learned to new problems; (3) who organizes his work well; (4) who speaks clearly and forcibly in discussions; (5) who presents neat, well-arranged, accurate, complete work on time; (6) who performs required skills with a high degree of techniques; (7) who completes both the average and the enriched assignment; (8) who has good study habits; (9) who has the power of analyzing his own work to discover his strong and weak points; (10) who shows marked initiative, industry, and attention.

B Pupil (0-64 Per Cent, Failure)

One (1) who is incapable of doing the work of his grade or who is not interested and makes little effort; (2) who takes little part in oral discussion; (3) whose work is careless, untidy, inaccurate, or incomplete; (4) whose vocabulary is very limited; (5) whose span of attention is short; (6) who may have much absence; (7) who has poor study habits.

Gathering and compiling data as a basis for the mark. A mark should rest upon an extensive body of data gathered by the instructor from many varied sources and over a period of time. Teachers have always marked daily recitations, papers, and examinations and averaged these data for a final mark. The whole theory of learning presented in this volume indicates the inadequacy of this procedure. Far more data, far

more varied data, far more valid data, and from many more sources are necessary. The descriptive marking schemes outlined in the preceding pages are but one simple step. The whole range of instruments described in Chapters 17 and 18 on Evaluation, and on Diagnosis are at the disposal of the teacher. Evaluation, diagnosis, and marking are each inseparable elements in a functioning whole-life situation.

Excluding extraneous items. Many research studies show that a very large number of items quite unrelated to pupil growth or achievement may and do enter into the determination of a mark. Teachers themselves have listed a total of seventy-five or more items which influence their marking. Effort, attitude, conduct in class, neatness, courtesy, coöperation, attendance, avoidance of tardiness, good attitude in class, standing or sitting erect while reciting, clear enunciation are all mentioned as factors in marking. None is legitimate. A pupil could manifest all of these and still fail to learn.

Courtis long ago presented evidence that boys must do approximately 14 per cent better than girls to get the same mark with average teachers.¹ Girls manifest certain qualities which cause teachers to mark them more favorably than boys. Docility, willingness to do assigned tasks, absence of disorder, and many other factors are involved. Many other studies show that certain instructors, particularly in high school and college, are greatly influenced by personality, economic status, race or nationality, and other factors. Analysis of marks given over a period of years in one teachers' college revealed that one woman instructor had never given an *A* rating to any girl who was notably nice looking or socially popular. A male instructor was found to give a preponderance of *A* marks to the very group of girls who could not receive an *A* from the first instructor.

The relationship of English usage (grammar, punctuation, spelling) to marking in other subjects has long been a bone of contention among teachers. Should a chemistry paper or essay in history be marked lower because of poor writing, spelling, grammar? Probably not, unless the poor English actually obscures the meaning and indicates confused thinking. The better traditional schools are slowly moving toward the requirement of a school mark in English usage to which all teachers in the school contribute. Proficiency in English usage on any and all occasions should be required of all students. Serious cases of deficiency should be referred to a remedial teacher. Graduation should be refused to students lacking mastery of good language habits regardless of marks which may have been earned in other specialized subjects. This whole problem disappears in the modern school which attempts either to mark actual learning or substitute for marks a description of learning achievement or growth.

¹ S. A. Courtis, *Why Children Succeed* (Ann Arbor, Mich., University of Michigan, 1926).

STANDARDS OF GRADING USED IN ANTELOPE VALLEY JOINT UNION HIGH SCHOOL

<i>An "A" grade indicates that</i>	<i>A "B" grade indicates that</i>	<i>A "C" grade indicates that</i>	<i>A "D" grade indicates that</i>	<i>An "F" grade indicates that</i>
1. The teacher has faith that the student would do exceptional work of the same nature in college or university.*	The teacher has faith that the student would do "above average" work of the same nature in college or university.*	The teacher doubts that the student would do recommended work of the same nature in college or university.*	The teacher feels certain that student could not do recommended work of the same nature in college or university.*	The teacher does not consider the student a candidate for successful work of the same nature in any way.*
2. The student met all requirements of the course, and more than was required, through his own interest and initiative.	The student met all requirements of the course, but was not inclined to do more.	The student frequently did not complete the assigned work on time and often required extra time to complete the work.	The student found the subject difficult. He failed to prepare all assigned work, but showed consistent effort to work to his capacity.	The student failed to accomplish the fundamental minimum essentials of the course, and would not make consistent effort to work to his capacity.
3. The student attacked new tasks and got them done with a minimum of help.	The student was less dependent than the average upon teacher or others in getting assigned work done.	The student is frequently unable to proceed promptly with an assigned task, and is often dependent upon others for help.	The student required special work constantly, but has shown some improvement in study habits during the semester.	The student's study habits were poor and ineffective, and showed no improvement while taking the course.
4. The student made the subject a part of his own knowledge and used it in creative thinking. He showed a high degree of real mastery.	The student was better than the average in attaining mastery, although the knowledge gained might have been used in a more creative way.	The student rarely applied principles creatively; he showed only a degree of mastery; and depended more upon memory than understanding.	The student has shown sufficient mastery of fundamental work to warrant the opinion that he will grow more through advancement than through repetition of the subject.	The student got no comprehension of the subject, made the same errors over and over, and expressed himself as a matter of memorized knowledge rather than with any understanding.

STANDARDS OF GRADING USED IN ANTELOPE VALLEY JOINT UNION HIGH SCHOOL

<i>An "A" grade indicates that</i>		<i>A "B" grade indicates that</i>		<i>A "C" grade indicates that</i>		<i>A "D" grade indicates that</i>		<i>An "F" grade indicates that</i>	
5. The student entered into class discussions and added to their value and interest.	The student entered into class discussions, expressed his thoughts intelligently, and generally added value and interest to the discussion.	The student took little active interest in adding things of value and interest to class discussions.	The student rarely took interest in class discussions, and seldom, if ever, added anything of value and interest. He frequently failed in recitations.	The student detracted rather than added to the value and interest of class discussions.					
6. The student used outside references when needed, and applied his findings to the topic assigned.	The student would use outside references and reading when required, but rarely did so on his own initiative.	The student required extra time for outside readings and found difficulty in locating his material.	The student rarely, if ever, did any outside reading or reference work for the course.	The student lacked any sense of responsibility for outside references, assignments, or readings.					
7. The student consistently passed tests with a high average.	The student generally passed tests with "above average" grade.	The student seldom got high grades on tests; generally got "average" or "below average" grades, but rarely failed.	The student rather consistently passed tests in lower quartile, and frequently failed.	The student rarely passed a test.					
8. The student showed independence of thought and action, and used this independence for good of the class group.	The student generally depended upon himself for his work, and always conducted himself in a way which was for the good of class group	The student was inclined to get help from others, and generally let the good of the class group guide his conduct.	The student was dependent upon others, but his class conduct was generally loyal, dependable, and helpful to the class as a whole.	The student did not control his class conduct for the good of the class.					

* Based upon the assumption that the student worked to the limit of his ability in this subject.

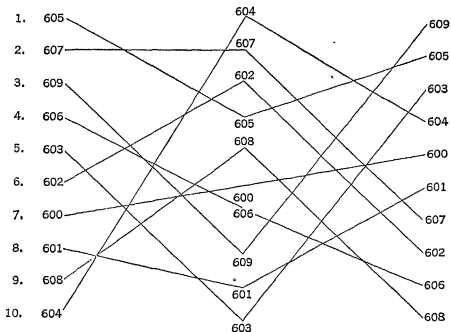
Credit for effort, cooperation, persistence, and other desirable traits. Marks must be determined as closely as possible on the basis of actual learning achievement. Extraneous items are to be excluded. Is the pupil then to receive no credit for effort; no reward for attention, persistence, cooperation or other desirable traits and attitudes? Certainly—but *not* as part of the mark for achievement of mathematical skills, of historical understandings, of appreciations in literature. Ability to solve quadratics is one thing; the effort to learn how to solve quadratics another. The fallacy in considering effort as a factor when determining marks is easily seen in any phase of mathematics. A pupil can progress in arithmetic only as he acquires in sequence the necessary understandings and skills. To give him a passing mark because he "tried so hard," "was so earnest," "so determined to succeed" is to put the pupil in an impossible learning situation which will retard if not prevent further learning.

The solution lies in the development in both traditional and modern schools of the rating cards, check lists, codes, etc., presented in preceding chapters. The many desirable personality traits and attitudes, the many appreciations and values are all legitimate learning outcomes in their own right. The pupil is to be evaluated in terms of these as well as in the formal subject learnings of the traditional school. The old marking systems reported only upon the limited, formal, and often trivial outcomes of learning. The newer systems attempt to evaluate and rate more numerous and more important outcomes.

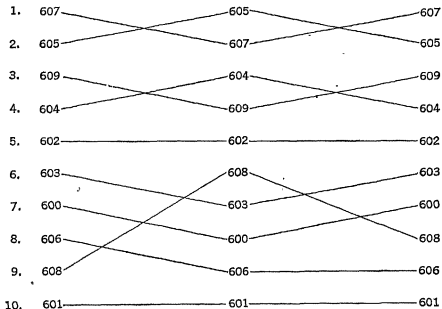
Reliability and validity of teachers' marks can be increased greatly. One of the oft-quoted studies in education is that in which a number of teachers were asked to mark independently the same examination paper. One first-year high-school English paper was marked by 142 teachers in as many high schools, a geometry paper by 118 mathematics teachers, and an American history paper by 70 teachers. The differences among marks assigned to one and same paper by different teachers were almost unbelievable. The marks for any one paper covered practically the entire range of the percentage scale. The English paper received marks varying from 50 to 98; the history paper, from 43 to 90; and the geometry paper—dealing with supposedly mathematically precise material—actually received the most diverse grades, the range being from 28 to 92! ²

A fact even more startling was revealed by another experiment. One teacher constructed a model answer paper to aid him in marking a series of papers which were being evaluated by a number of teachers. This paper was accidentally mixed in with the others and as it made the rounds of the other teachers received marks varying from 40 to 90! Such data as these are made the bases for criticisms of marking and complaints about the unreliability of teachers' marks. These data attract attention because they are odd and startling. They have had far too much

²Daniel Staich, and E. C. Elliott, "Reliability of Grading High School Work in Mathematics," *School Review*, Vol. 21, 1913, pp. 254-259.



RANKINGS OF TEN THEMES BY THREE TEACHERS WITHOUT THE USE OF A SCALE



RANKINGS OF THE SAME TEN THEMES BY THE SAME THREE TEACHERS
FOURTEEN WEEKS LATER

currency among teachers. Far less well known is the fact that similar experiments show not only a high percentage of agreement among teachers' marking but also very great reduction in variation when standards are developed and training in marking is given. Coincident with these early studies, others, less spectacular, developed showing that the question was not simple and that early opinions were subject to revision.³

Wood,⁴ in a later study, had 413 algebra and 396 English papers marked twice by a number of readers all of whom had received instruction in the technique of marking. Correlations between the two marks was so high that criticism of variability was a waste of time. Ashbaugh had a set of arithmetic papers marked three times at four-week intervals by 49 readers.⁵ Variability showed a range of 51 points, 50 and 39 on the first three markings. Extensive discussion was then inaugurated and the readers set up standards of marking and relative values for sub-points. The range was reduced to 18 points. A study by Hudelson⁶ showed the most astonishing reduction of variability in the difficult marking of written compositions. The two charts on page 491 show the variability of marks by untrained teachers and the reduction of that variability on the basis of training in marking.

The increase in reliability may or may not be an increase in validity. Reduction of the range might mean merely that teachers had agreed upon what to mark and had attained skill in marking the agreed-upon items. The standards set up for marking must naturally be concerned with evidences of desirable learning in order to increase validity along with reliability.

A number of writers still believe that teachers' marks are highly unreliable, but a larger number believe them to be more reliable than formerly thought; and a large number show that variability can be sharply reduced by (a) the coöperative establishment of valid standards, and (b) definite training in using these standards in determining marks.⁷

³ For opposing studies of approximately the same dates see C. T. Gray's on judging handwriting papers; Shriner's on marking papers for a whole class instead of but one paper, and others.

⁴ Ben D. Wood, "Measurement of College Work," *Educational Administration and Supervision*, Vol. 7 (September, 1921), pp. 301-334.

⁵ E. J. Ashbaugh, "Reducing the Variability in Teachers' Marks," *Journal of Educational Research*, Vol. 9 (March, 1924), pp. 185-198.

⁶ Earl Hudelson, "Effect of Objective Standards upon Composition Teachers' Judgment," *Journal of Educational Research*, Vol. 13 (1925), pp. 329-340.

—, "English Composition: Its Aims, Methods and Measurement," *Twenty-Second Yearbook of the National Society for the Study of Education*, Part I (Bloomington, Ill., Public School Publishing Co., 1923).

⁷ See for instance many texts on tests and measurements.

See also: F. D. Brooks, *The Psychology of Adolescence* (Boston, Houghton Mifflin Co., 1929); P. M. Symonds, *Measurement in Secondary Education* (New York, The Macmillan Co., 1927); Grayson N. Kefauver, "The Validity of Bases for Forming Ability Groups," *Teachers College Record*, Vol. 31 (November, 1929), pp. 111-113; C. G. Ross and N. T. Hooks, "How Shall We Predict High School Achievement," *Journal of Educational Research*, Vol. 22 (October, 1930), pp. 184-187. Many others available.

Marking complicated by various forms of homogeneous grouping
Grouping pupils in terms of ability, achievement, information, or other formal basis immediately raises the question of assigning marks to the various levels. Many schools and rooms within schools operate three groups, bright, average, and slow. Shall all levels of marks, whether per cents or letters, be given within each group or should the high marks go to the bright group alone and the lower marks to the slow group? Considerable argument has resulted but few constructive suggestions. The commonest procedure is either to give all marks in all groups and meet arguments over promotion, college entrance, etc., as they arise, or to assign marks with an exponent; A^1 , B^3 , or C^2 and the like. This seems fair in that it judges the pupil in terms of the requirements set for his group. Any such system, however, has many administrative and popular repercussions. Local administrators will need to devise such systems as they can make work and can use with their constituents. The crux lies in the fact that the whole scheme being discussed is based on an erroneous conception of learning. Grouping pupils on the basis of social maturity, providing for continuous progress and easy passage from group to group, and using modern descriptive ratings of actual learning achievement eliminate the problem of marking by levels or groups.

The passing mark. Modern knowledge of the nature of learning processes and products makes the concept of the passing mark an absurdity in general education. There cannot possibly be a specific passing point dividing the successful from the failing, if learning outcomes are properly defined, and if pupils are learning steadily in terms of their capacities. This has all been adequately explained several times in preceding chapters. Traditional administrators and teachers who believe in the myth of a passing mark in elementary schools or in secondary core curriculums do so only because they do not understand the nature of learning. There is a difference between the determination of failure in general education and in special subjects as was explained in the chapter on evaluation.

Traditional schools will, however, use passing marks for a long time to come. Desirable procedures should then be understood. The least detrimental method is a compromise in which actual learning is determined as accurately as possible under traditional conditions and by various means previously described. Differentiation of marks above passing may then be in terms of levels of insight, interest, and skill. This, of course, carries us far toward the abolition of marks.

The determination of the passing mark in strictly traditional schools is easy. The repetition of text material, the working of exercises, the repetition of formulas are usually the basis for any mark. These items are easily marked by per cents or letters because meaning for the marks can be disregarded. Passing level may be placed at any arbitrary given point, since it does not really matter—except to the slow pupil who should not

be allowed to interfere with administrative efficiency! Passing marks are, in fact, usually determined by local public opinion, depending upon the demands of the local board, the parents, the superintendent, or of some neighboring university. Passing marks vary in this country from 60 to 75 for no logical reason.

The distribution of marks. Regardless of where the passing mark is placed, the question then arises: how many marks above and below passing should be given? How many pupils should receive marks of *A*, or above *go*; of *C*, or just barely passing? The modern school has no such problem if it provides each pupil with a descriptive rating of status and progress. The better traditional schools attempt to determine levels of actual learning by securing evidences of insight or of skill—or of any desirable learning outcome and then letting distribution take care of itself in terms of this evidence.

The formal traditional school, which marks subject-matter learning and in which few teachers have made any study of marking, needs some formal device to aid in securing a sensible distribution and to ensure fairness to the pupil. The normal curve of distribution was once widely used and still appears in many places. The statistical derivation and meaning of the curve are now reasonably well known to teachers. Statisticians differ somewhat in details when applying the curve to school marking but in general agree upon some such distribution of marks as the following:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>F</i>
3	22	50	22	3
or 7	24	38	24	7
or 10	20	40	20	10

The normal curve as an aid to distributing marks is largely a snare and a delusion. It was derived originally from and is based upon the assumption of infinite populations of unselected items. The curve actually fits only such situations. No group of pupils beyond the primary is unselected. Even there, many at the lower end of the distribution have been eliminated. Any curve based upon marks actually earned by large numbers of students in many courses and over a period of time, regardless of the basis for marking, will always be skewed toward the upper end, unless the group is definitely retarded, in which case the skew will be the other way. The cue to proper use of curves as aids to distribution lies in the preceding sentence. Master curves should be made up based upon local data covering a period of years. This ensures a guidance device which has taken into account any local conditions of any weight. The type of pupil, efficiency of teaching, theory of education, materials available, etc., in the given situation—all affect the local curve. The idiosyncrasies of individual instructors who mark too leniently or too severely

are canceled out. Many school systems and universities make up such curves from cumulative data in their own offices. For instance, the actual distribution of marks over many years and with all types of instructors at the University of Chicago produces the following percentages:

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>F</i>	<i>No Grade Given</i>	<i>Provisional Grade</i>
13	35	36	8	3	1	4

Devices are not to determine marks but to aid instructors. The use of these curves has resulted in some serious errors and injustices in given situations. Instructors have distributed marks in terms of the curves regardless of the achievements of individual pupils. One registrar actually attempted to force an instructor to give one A, one B, one C, and one D in an advanced technical course for which four A marks had been turned in. This is plain stupidity. The assignment of an arbitrary number of failing marks because the curves indicate that number, when actually no student failed, is a serious injustice. Extreme cases are known in which dummies were employed to register for courses, do nothing, and absorb the arbitrary percentage of failing marks, thus ensuring that the bona fide (?) student would pass!

Devices for distributing marks are solely for aiding instructors to understand more clearly the nature of marking. The distribution of an instructor's marks in courses of general interest over a period of years should approximate the general curve for the local situation. The distribution for given classes, especially small advanced groups, may vary widely from the curve. Serious variations from the general tendency within a local situation cannot be dismissed with a shrug. Instructors are under obligation to account for such variations. Sometimes variations will be found to be legitimate; sometimes, purely capricious. The value of this general check is easily seen in the case of the unduly severe or unduly lenient marker. The teacher with a high percentage of failures ridicules the curve and hides behind the traditional smoke screen of "high standards." The too lenient individual minimizes specific attainments and evidences of learning and states that he is interested in developing "point of view," "attitude," "general interest in the field." Each type of instructor is given pause when confronted with continuous factual evidence that he is out of step. The distribution formulas and curves are in no sense to determine the actual marks or distributions but are to be used as general guides to thinking about marking in given situations.

Relative ranking and competitive marking. Marking pupils on the basis of rank-in-class is widespread among "practical" teachers and is accepted if not in fact desired by many parents. The procedure is severely condemned by all competent educational authorities. Psychologists, psy-

chiatrists, and physicians join in this condemnation. Because of this sharp cleavage between some teachers and those who have the facts, and because arguments over competitive marking constantly crop up, treatment here is somewhat more extended than the point warrants.

The time-honored technique is to determine which pupil answers the most questions, does the most exercises, makes the fewest errors, then the next best pupil, and the next, and so on through the group. Compositions are grouped in terms of relative excellence as judged by the reader, those in the first group receiving an A, or a B if not up to the arbitrary standard set by the instructor, and so on through five or so groupings of papers.

Immediate and specific weaknesses in, and objections to competitive marking. The first immediate and obvious blunder underlying this practice is the defiance of known facts about individual differences in ability, in rate of learning, in interests, in background: defiance of facts about the learning process and its motivation, etc. Previous chapters have made clear that different organismic patterns learn different things in different ways and at different rates. Relative or competitive marking insists that all types of pupils learn the same things in the same way and at the same rate. Competitive marking is not only a flat defiance of known facts; it is a vicious policy working severe and measurable hardships upon learners. A child working to the very limit of his ability, energy, and interest should not be given a mark of C because another child did more work within the same time limit. What other pupils have accomplished cannot possibly have any bearing upon what one given pupil has done. Herein we see again the fallacy of the whole concept of marking. Each child is entitled to a statement that he is learning satisfactorily, or not learning, in terms of his capacity, insight, and reaction time. Evidence should be gathered continuously showing explicitly, not whether one pupil is better than another, but whether the given pupil has learned or not. The compromise between modern descriptive ratings fitted to individuals and competitive marking lies in the marking devices described earlier in this chapter.

The second important weakness of competitive marking is that it distracts attention from desirable learning outcomes and interferes directly with sound teaching procedures. Teachers and pupils both center upon the subsidiary, and non-important evidences of subject matter memorized, exercises worked, formulas repeated—all of which can be marked easily. The more important outcomes which cannot be evaluated so superficially are neglected. Pupils can be bullied by threats of poor grades, or wheedled with promise of good ones into engaging in the most non-educative and mis-educative activities. Lists of wholly useless drill exercises, bodies of subject matter quite unrelated to life, deadly dull assignments will be completed by pupils under threat of not doing so well as the others.

One aspect of this is important enough for separate comment. One major objective of education is to develop social adjustments, coöperative abilities, participation in group discussion and decision, working together for common goals, and many similar items. Competitive marking is contrary to the needs of society as well as to the needs of individuals. Pitting pupils against one another inevitably breeds discord and unwillingness to contribute toward common enterprises.

A *third* objection is that competitive marking is productive of seriously bad mental hygiene. The slow, earnest pupil is discouraged and antagonized, and eventually engages in dishonest practices. Cheating, copying, lying, and other defense mechanisms are natural results of forcing competition upon children of unequal ability. The quick pupil often acquires a false outlook on life and a false sense of values. Envy, jealousy, antagonisms between pupil and pupil, between pupil and teacher, and between parent and school cannot be avoided if competitive marking is employed. These points have been elaborated previously in this volume.

Remote, general, and fundamental arguments against competitive marking. Parents and teachers often approach competitive marking from the angle of basic social and psychological theory. Individuals proceeding thus are usually wholly honest but uninformed and uncritical. Their general argument is that competition is the rule of life, that competition is a dominant characteristic of life outside the school, and therefore pupils had better learn to compete.

Competition is the rule of life and is characteristic of society outside school, hence there should be competitive marking among the children in a typical classroom. Let us see. *First*, this argument rests upon a naïve but serious logical error, namely applying a remote, general, social *theory* to an immediate, limited, and specific *situation* without regard for the detailed phenomena of the latter. Theory and situation must always be fitted to each other through analysis of circumstances. The limited classroom situation including immature children of differing abilities, interests, and rates of learning cannot possibly be regulated under a general social theory based on different circumstances. Competition in life is within reasonably homogeneous groups. In any event, unskilled laborers are not asked to compete with engineers, accountants with novelists.

Second, it is philosophically and logically naïve to believe that since competition is a characteristic of life and of society, that it is therefore either necessary or desirable. Competition in life was produced by certain known factors. Some of these factors are disappearing or are being minimized as time passes. Competition unquestionably produced certain specifiable benefits. Competition with equal certainty is responsible for certain specifiable and serious evils, particularly in economic life, and in the field of mental hygiene. Many of these evils in real life are counterparts of the evils produced by competitive marking among children. Dis-

tinguished thinkers have been insisting for some time that we can never have either a democratic or a Christian civilization if we retain uncontrolled competition. This leads directly to the third point.

Third, history reveals a steady and increasing trend toward the proper control of detrimental types of competition, toward a world in which competitive and coöperative forces and processes are each given rightful place. There will always be competition in the world, but the peoples of the world are increasingly refusing to accept those forms of competition which involve exploitation of persons or of common natural resources. The destruction of personality values and the miseries resulting from robbing society of its resources are too high a price to pay. Competitive marking in school is an excellent illustration of a process seriously destructive of personality values. It is out of step with the developing trends in society.

There are no fundamental philosophic, psychological, or sociological arguments to support competitive marking in school classrooms.

Competitive marking legitimate in specialized subjects in technological or professional training. The basic difference between general and special education has been pointed out several times in previous chapters. The application here is obvious.

Recognition of individual limitations: acceptance of different types of contribution. It is increasingly important that individuals come to recognize and to accept cheerfully their own individual limitations; to recognize that the complex group life of modern civilization necessitates varying types of contribution; to recognize that the democratic ideal holds the various types and levels of contribution to be worthy of respect. Many honest but superficial observers believe that competitive marking will achieve this end. The preceding paragraphs indicate the futility of this hope. The development of a truly democratic philosophy in the operation of a modern curriculum and teaching method centering upon democracy and upon personality integration is the route to the desired end.

General programs for improving marking. A pupil's mark should be (a) based upon valid evidence of genuine acquisition of desirable learning outcomes, (b) gathered from the daily activities of the pupil in any and all kinds of situations. The following statements summarize some of the major features of an improvement program.

1. Standards for marking should be coöperatively determined by the staff. Departmental committees or the staff in small schools will define in detailed descriptive statements the evidences of learning and the distinctions between levels in the marking scale.

2. Programs of training in marking should be used wherever there is need. The staff will study the research investigations, the development of descriptive standards, the explanations of extreme variability, the use of local curves, etc.

3. The distribution of teachers' marks, individually and by departments, should be published in an open bulletin.

4. Discussion of these bulletins should take place in teachers' meeting as need arises.
5. Teachers or departments whose marks depart in sharp degree from the typical, over-all, long-time distribution within a given school may present data to justify their departure or may engage in study to reduce it.

EXHIBITS

The instructor should build up a collection of (a) descriptive marking systems, and (b) bulletins issued by school systems in which the marks given by individual teachers and by departments are summarized and compared. Students may gather and contribute items to this collection.

EXERCISES

1. The descriptive marking scheme developed by the writer and students was made for use in this course in principles of teaching. Critically evaluate the scheme as it stands and for the purpose announced.
 2. Individuals or small committees may wish to suggest major changes in the scheme or to develop a new scheme applicable to this course.
 3. After class discussion and analysis of the scheme (with possible modifications) each student should attempt to determine his own course mark.
 4. A class committee may search the literature for a number of descriptive schemes, presenting an account and critical evaluation to the class.
 5. Individuals or small committees may construct for their own major subject a descriptive scheme which they might expect to use in teaching.
- Note.* In determining one's own mark in 3, or in making up original schemes as in 2 or 5, students should keep in mind that
- a. Marks should be given only on the basis of clear and unmistakable evidences showing acquisition of given understandings, attitudes, intellectual skills, or other desirable outcomes
 - b. Marks should not be given for mere reproduction of the facts but for the derivation and use of principles embodying the facts
 - c. Marks should not be given for the successful solution of study questions or the working of learning exercises but for the interpretation of the answers into controlling understandings and attitudes
 - d. Marks may be differentiated (a compromise between the ideal and the practical) on the basis of frequency of appearance and insight in the use of the understandings and attitudes; of such intellectual skills as clarity in defining problems, resourcefulness in discovering solutions, ingenuity in analysis, discrimination in selecting or rejecting solutions or data, ability to formulate hypotheses, ability to use these skills in varied situations, and many others
6. Experienced teachers may report upon
 - a. Marking systems they have used or worked with which are significantly different from those suggested in this chapter
 - b. School bulletins used in their own systems to summarize and compare marks
 7. Individuals or small committees may report on a collection of current articles the problems of marking.

SUGGESTED READINGS

EVANS, Robert O., *Practices, Trends, and Issues in Reporting to Parents the Welfare of Children in School* (New York, Teachers College, Bureau of Publications, 1938). An excellent compact summary covering practically all points.

LEARNED, W. S., "What's in a Mark," *Thirty-Seventh Annual Report of the Carnegie Foundation for the Advancement of Teaching*, 1941, 1942, pp. 27-62. The periodical literature is particularly rich in discussion of the problems of marking.

Many general texts in teaching and upon testing contain discussions similar to that in this chapter.

SECTION 2

THE REPORT CARD

The report card is the chief means used to carry out the main purposes of the marking system, namely to inform pupils and parents about the learner's progress. The report card reflects the many far-reaching changes which are taking place in education and is rapidly changing in form and content.

Traditional report card developed during period of subject-matter dominance. The report card with which most adults are familiar developed during the nineties and reflects the educational philosophy and practice of the day. Subjects were listed and marked with per cents or letters or some other symbol, but chiefly in percentages. Practically the only other items mentioned were absence, tardiness, and deportment. The characteristics and the weaknesses of these cards can be summarized briefly.

1. Emphasis was entirely upon the subject, not the learner. Practically the only other items to appear beside the list of subjects were absence, tardiness, and deportment.
2. Marks were most commonly in the form of per cents. Letters and word ratings appeared later.
3. No description or interpretation of marks accompanied the card. Thus the traditional cards were not very informative to either pupils or parents, though false meanings grew up and are today one of the chief obstacles to intelligent thinking about reports.
4. The real purposes of education and outcomes of learning were concealed and eventually neglected.
5. Wrong attitudes and ends were engendered among the children. Attention was focused not on real outcomes but on the mark. Pupils worked for the mark and to "get by." Detrimental attitudes of superiority or inferiority, envy, jealousy, etc., were engendered. Cheating and cramming were natural.

The new-type report card a natural development as educational thinking changed. The breakdown of traditional formal education and of the assign-study-recite stereotype, the development of huge bodies of information about the nature of the learner and of learning, clearer

conceptions of the ends of education within a democracy have all been discussed in previous chapters. Reports to parents and pupils inevitably had to change to reflect the new emphasis and ends. The bare listing of subjects has given way to descriptive statements of major learnings within these subjects, degrees of skill, and the like. All phases of growth are included so that the many attitudes, interests, habits, personal-social-moral traits receive a mark or a check in terms of a rating scale. Great progress has been made, particularly within the past ten years. Thousands of new-type cards are in use and available for inspection. Nevertheless many school systems have never heard of improved reports and literally thousands of practical teachers are wholly unaware of them. Some writers believe that the report card has not kept pace with other major aspects of the developing educational scene.

Characteristics of newer report cards. The features of the developing report cards may be contrasted directly with the characteristics of the traditional type as listed above.

1. Emphasis is upon the learner rather than upon the subject. Report shows what learner is doing and how he is progressing and not how much subject matter has been mastered.

2. Marks or ratings are in terms of descriptive scales rather than per cents or letters.

3. Adequate description and interpretation accompany the new card, sometimes embodied in the card itself, sometimes in a separate booklet or bulletin of some size. Thus, pupils and parents are definitely informed as to ends and progress, and in understandable terms.

4. The real purposes of education and learning outcomes are clearly indicated, often included in the descriptive ratings.

5. Detrimental attitudes and habits among the children are progressively eliminated.

Three direct implications are clearly discernible.

1. If the subjects are retained as categories, the learnings within them must be specifically described for both pupil and parent. Ratings within learning to be derived from subjects must be in terms of pupil growth and characteristics. Status in a "subject" cannot be lumped off under a meaningless figure or letter mark.

2. All phases of pupil growth must be included—physical, social, and emotional, as well as intellectual. This means the addition to the report card of definite places for these newer outcomes

3. Reports will increasingly be in terms of pupil's own capacity and growth and not in terms of rank in class or competition. This means that as far as possible three factors will be recognized and kept distinct.

- a. The native ability of the pupil

- b. The present achievement of the pupil

- c. The growth of the pupil in achievement and his rate of progress.
(Cards should show clearly that judgments are in terms of the ability of the pupil, or the average of the group, or the previous record of the pupil, or some other standard.)

The writer has gathered several hundred new-type report cards during the past few years and finds the following developments:

1. *Conspicuous changes appear in markings by subjects.*
 - a. Traditional, unexplained, single marks by subjects are steadily decreasing.
 - b. Subjects are increasingly grouped under major broad fields.
 - c. Important objectives to be gained from individual subjects are listed increasingly.
 - d. Definitions for marks, where retained, are increasing.
 - e. Scores on standard tests in fact and skill knowledge are increasingly included; relation of the individual to the norm and to class average appears.
 - f. Several cards show marks in relation to ability groups.
 - g. Mention of improvement or of reasons for poor progress is increasing rapidly.
 - h. Profiles for individual pupils appear often.
2. *Social and emotional growth; special interests; attitudes; habits are increasingly included.*
 - a. Subjects are marked separately for effort, or general attitude manifested, as well as for achievement.
 - b. Special interests, abilities, and extracurricular activities are increasingly listed.
 - c. Profile charts for citizenship habits and attitudes often appear.
 - d. Social and emotional traits and attitudes are included in nearly all recent cards.
 - (1) Described in terms of general words for character traits
 - (2) Described in terms of specific behavior(These items, however described, may appear as an unclassified list of items, or may be grouped under various categories.)
3. *Physical growth and well-being, health knowledge and habits are increasingly included.*
4. *Increased opportunity for coöperation with parents is indicated.*
 - a. The philosophy and aims of the school may be briefly stated on the card or included in a pamphlet to parents.
 - b. The purpose and organization of the school report itself are increasingly explained, either briefly on the card or in a separate booklet.
 - c. Advice for the assistance of pupils who are not progressing satisfactorily is increasingly included.
 - d. Special interests, abilities, or aptitudes, are called to parents' attention.
 - e. Written comments by parents are increasingly invited.
 - f. Opportunity for the parent to report to the school on certain definite items is beginning to appear.
 - g. Parents are increasingly invited to visit school and confer.
5. *Comparative or competitive marking is disappearing with considerable rapidity.*
6. *Individual, personalized, letter-form reports from teacher to parent are increasing slowly.*
7. *Conferences between parent and teacher appear both as supplements to report cards and as substitutes.*
8. *Special notices of failure sometimes supplement the report card.*

9. *New-type report cards are increasingly printed in large type, decorated, or otherwise given a pleasing appearance.*

10. *A very marked tendency is apparent so to organize and word all items that the report is easily and immediately understood by any pupil or parent.*

11. *Separate cards for various levels (kindergarten, primary, upper grades, high school) and for single subjects in high school are increasing.*

Classes of new-type report cards. The writer has attempted to classify report cards in terms of their departure from the traditional form. The differences which appear are in the degree to which new-type items are included and the amount of detail included in the descriptive ratings. Other analysts might wish to use very different classifications.

1. Separate subjects marked without analysis or explanation
2. Subjects marked traditionally; plus very brief list of traits, or attitudes, or both designated by general trait names only and to be checked, no explanations
3. Subjects marked traditionally, but brief explanations of the marks included on the card or in separate bulletins
4. Subjects and skills scored by tests. Attitudes or traits distinguished by levels and checked. Profiles or bar graphs may or may not appear for test scores here.
5. Subjects and skills checked in terms of described desirable levels of achievement; brief list of attitudes, traits, etc., checked in terms of levels of growth
6. Subjects and skills checked in terms of described desirable levels of achievement, attitudes and traits checked in terms of growth; plus space for comment by the teacher
7. Subjects and skills checked in terms of described desirable levels of achievement; plus extended list of attitudes and traits described on several levels to be checked
 - a. Attitudes and traits described in paragraph descriptions instead of very brief sentence statements of levels
 - b. Descriptions of attitudes and traits must be written out by teacher for each pupil
8. A very brief card embodying best features so far developed but containing in itself a mere record; detailed explanations to pupils, parents, and teachers in separate booklet or bulletin
9. Letter form report substituted for all subject or attitude lists
10. Report card from parent to school

The progress is from a simple formal report of status in subject-matter mastery to a detailed, specific report of growth in many aspects of personality development. Many variations within and between the types listed appear in practice. Goal cards and provision for lists of units completed or voluntary projects originated appear on some cards.

New-type cards do necessitate considerable work upon the part of teachers at first. The early ones gave little help to the teacher in guiding her ratings. The development of the descriptive explanation of marks, of described levels of behavior, of described illustrations of traits have

developed in the effort to give the teacher a guide which would cut down the amount of work and still avoid stereotyping. The letter-form cards naturally cannot be formalized and will always require definite attention and effort from the teacher. Teachers find that, as familiarity and skill develop, the amount of work decreases. In any event, the results achieved far more than compensate for the effort. Teachers with large numbers of pupils should develop some type of descriptive report card which can be marked rapidly but without undue sacrifice of individuality.

Sample cards at different levels. The report card from Chula Vista, Cal., represents a simple step forward from the traditional. A very small list of general citizenship traits is to be checked; subjects are written in. Four reports of this type are made per year:

FIRST REPORT

Date.....

Citizenship

Works well with others	Ex ()	Av ()	Poor ()
Initiative—Ex ()	Av ()	Poor ()	
Self-Control—Ex ()	Av ()	Poor ()	
Depends upon himself—Ex ()	Av ()	Poor ()	
Health { Cleanliness—Satisf't'y ()	Unsatisf't'y ()		
Habits { Posture—Satisf't'y ()	Unsatisf't'y ()		
Work { Thorough—Ex ()	Av ()	Poor ()	
Habits { Prompt—Ex ()	Av ()	Poor ()	
Effort—Ex ()	Av ()	Poor ()	

School Studies

Does satisfactory work in.

 Does strong work in.....
 Does Weak Work in.....
 Effort—Excellent () Average () Poor ()
 Days Present.....Days Absent.....Times Tardy.....
 Teacher
 Remarks

A report from the parent to the teacher is provided, and on the reverse side there is space for parent's signature, pupil's name, birth date, grade. This is shown on page 506.

The Winchester, Mass., report represents a step well along the way to a detailed card. Traits are described very briefly in terms of a few representative acts. Subjects are broken down into a few important general outcomes. Pages 508-509 present this card.

Santa Barbara, Cal., carries the detailed listing of items and evidences much further along the idea indicated by the Winchester report. Space is allowed for listing units completed and for teacher and parent comment. Santa Barbara also published from time to time separate rating scales for different issues: one for general traits and behavior includes eleven general traits, each described through from three to six sub-points, and each of these broken down into five levels. One sample from this scale is given here:

COÖPERATIVENESS

A. *Takes part in Group Activities.*

1. Sacrifices own interests to carry out group decisions.
2. Works actively toward carrying out group decisions.
3. Sometimes leads and sometimes follows. Abides by group decisions.
4. Follows directions in the group but avoids leadership.
5. Works and plays alone or with one other.

B. *Helps Others.*

1. Sacrifices own interest to help others when necessary.
2. Helps others when his own work is finished.
3. Lays aside own work to help others when asked.
4. Helps others when not necessary.
5. Gives no help.

C. *Takes Turns: Shares with Others.*

1. Sacrifices own share or turn for the good of the group.
2. Voluntarily shares materials, turns, etc.
3. Shares materials, turns, etc., when suggested by leader.
4. Seldom shares, takes turns, etc.
5. Shares when urged.

Burbank, Cal., uses a series of "progress reports" which include two general categories of habits and a third division applicable to one of the special subjects found in the high school. The report for the core curriculum or "Social Living" course in junior high school, reproduced on page 507, illustrates the technique.

PARENTS' REPORT TO TEACHER

We cannot teach children separate and apart from the home. It is possible to accomplish more if we work together. Will you help us to make our program more vital and meaningful by checking these questions in the column to the right.

We welcome further comments and invite you to come for a personal conference at any time.
Our Child:

Is happy at school.....	Yes	No	Does not know	1st REPORT	Yes	No	Does not know	2nd REPORT	Yes	No	Does not know	3rd REPORT	Yes	No	Does not know	4th REPORT
Regards work as worth while.....																
School interests are reflected in his home reading and discussion.....																
Shares his materials and knowledge with others.....																
Has pride in his health and appearance.....																
Gets ready for school without being told repeatedly.....																
Reflects his school training for citizenship at home and on the street.....																
Practices safety at home.....																
Takes part happily in activities of the family.....																

JOHN BURROUGHS JUNIOR HIGH SCHOOL
BURBANK, CALIFORNIA

PROGRESS REPORT

**First Quarter
1941 - 1942**

Pupil Subject **SOCIAL LIVING**..... Grade..

	Consistently	Usually	Occasionally
I. SOCIAL HABITS			
A. Shows desirable initiative
B. Respects general school regulations
C. Shows self-control
D. Is courteous
E. Accepts criticism well
F. Cooperates in group activity
II. WORK HABITS			
A. Is prompt in beginning work...
B. Is prompt in completing work
C. Gives thoughtful attention
D. Follows directions accurately.
E. Does neat and orderly work....
F. Works independently
	Above Grade Level	Below Grade Level	At Grade Level
III. ACHIEVEMENT IN SOCIAL LIVING			
A. Understands the problems studied in the unit of work and takes part in the discussion of them
B. Organizes material and presents it clearly (Includes using references, outlining, clear thinking, giving re- ports, etc.)
C. Shows a growing interest in, and understanding of, reading materials.
D. Uses necessary skills in written ex- pression (Includes spelling, hand- writing, grammar, punctuation, capi- talization, etc)
E. Expresses self well orally (Includes pronunciation, choice of words, grammatical correctness, etc)

IV. REMARKS

V. ATTENDANCE

Number of absences..... Number of tardinesses.....

Teacher

CITIZENSHIP

ATTITUDES - HABITS - ABILITIES

	1	2	3	4
<u>PERSONAL LIFE</u>				
I take care of my health by:				
Keeping clean				
Brushing my teeth				
Eating regularly				
I try to be courteous by:				
Being polite and kind				
Listening while others are talking				
Playing fairly				
I try to be independent by:				
Doing my work promptly				
Finishing my work on time				
Keeping busy at useful tasks				
Trying to discover my mistakes				
Trying to correct my mistakes				
* Taking care of my books and material				
<u>GROUP LIFE</u>				
I try to help my class to lead a worth-while group life by:				
Helping to make plans				
Trying to find information needed by class				
Sharing ideas and information				
Sharing materials				
Helping in every way I can				
Respecting the rights and properties of others				
I have tried to mark fairly				

MARKING SYSTEM

The citizenship traits named above are scored by the child, using + for the affirmative, and - for the negative.

19. to 19 ...				
Number of days absent				
Number of times tardy				
Number of times dismissed early				

SCHOLARSHIP

PROGRESS IN SCHOOL SUBJECTS

	1	2	3	4
READING				
Reads silently with understanding				
Reads aloud with understanding				
Enjoys books				
LANGUAGE				
Speaks clearly and correctly				
Writes clearly and correctly				
SPELLING				
Spells words correctly in written work				
Is able to spell basic list				
PENMANSHIP				
SOCIAL STUDIES (Geography and History)				
Understands work of class				
Participates in class discussions				
Participates in class activities				
ARITHMETIC				
Knows number facts, such as $9+4$, $7-2$, 6×3 , $12 \div 4$				
Understands common processes of add., sub., mult., div., dec., frac., etc.				
Can solve problems				
MUSIC				
ART				
PHYSICAL EDUCATION				
CO-OPERATION (School Citizenship)				

MARKING SYSTEM

The above points of scholarship and co-operation are scored by the teacher.

MAJOR MARKS

E—Excellent
G—Good
F—Fair (Average)
U—Unsatisfactory

CONTRIBUTORY CAUSES FOR MAJOR MARKS

+ Strong in this ability
✓ Average in this ability
— Weak in this ability

The letter-form reports vary from brief paragraphs to full-page letters. Many school systems now issue bulletins giving teachers definite guidance in writing these letters. The two samples below are from the Shattuck School, Norwood, Mass., and illustrate two forms of the letter report.

SHATTUCK SCHOOL

December 1, 1938

BETTY BLANK

GRADE II

ATTITUDE TOWARDS:

Work—Betty has a spasmodic interest in work. She does not always complete assigned work on time and concentrates with difficulty. I have noticed that Betty has improved slightly since the beginning of the year.

Play—Does not mingle with many children. Likes to tell tales on others.

Teacher—Does not always obey promptly and frequently interrupts. Demands a great deal of attention.

SPECIAL ABILITY: Betty shows a special interest in writing and frequently practices by herself.

SPECIAL DISABILITY: Phonics. Betty requires individual help in applying sounds and building new words.

READING. Betty reads fairly well orally, but does not comprehend very well silently. We have noticed progress in her reading and much more interest in supplementary books.

WRITING: Good.

SPELLING: Fair.

ARITHMETIC: Shows an interest in numbers, but is not very accurate.

ABSENT: 0 Sessions

TARDY: 0 Sessions

NOTE TO PARENTS: Your comments on this report and suggestions to me for your child's welfare are invited. If you wish, you may use the back of this sheet.

Please sign and return.

A second illustration is:

Mary is overcoming her early shyness and is beginning to adjust herself to other members of the group. She seems to know more than she is able to express and we are arranging situations which will give her opportunity to grow here. She is overly conscientious to the extent that she often carries tales concerning the misbehavior of other pupils, but we are helping her to overcome this.

She plans her work carefully and works industriously, though individually. She is making progress in reading, but we believe she can grow more rapidly. The additional help she receives in the afternoon session is showing results.

Her writing, spelling, and language are showing growth. She seems interested in social studies and contributes more and more to the discussion and planning. She is beginning to show signs of leadership within small groups and works hard to achieve the thing her group plans to do.

Reports and cooperation from parents. Parent reports to the school are definitely on the increase as well as efforts at coöperation between home and school for the attainment of the general aims of education. Report cards are as yet simple and elementary.

REASONS PARENTS SHOULD VISIT SCHOOLS

1. To keep in touch with the work of their children.
2. To encourage the teachers.
3. To get first hand information about the work of the schools.
4. To become acquainted personally with the teacher and principal
5. To learn at first hand the condition under which their children work.
6. To learn the problem the children must meet.
7. To make it possible for the school officials to interpret to parents the policies under which the school operates.
8. To aid in developing real school spirit in the community.

WHAT TO OBSERVE

1. Sanitary condition of the school buildings.
2. The general discipline and management of the school.
3. The attitude of the teacher toward the children.
4. The attitude of the children toward the teacher.
5. The size of the classes.
6. The physical conditions under which the teacher and pupils work.
7. Facilities offered for the development of health.
8. To what extent their own children participate in the school's activities.
9. The equipment of the school, especially as to libraries, musical equipment and playgrounds.

SOUTH PASADENA, CAL., INDICATES ON THE CARD WHY PARENTS SHOULD VISIT SCHOOLS

SECTION II

Health and Home Report

All facts asked for in this section will be helpful to the school. It is to be hoped that parents will fill this out as completely as possible. This part need not be marked the second semester unless there is some change.

	FIRST SEMESTER	SECOND SEMESTER
1. At what time does he arise in the morning?
2. At what time does he go to bed?
3. Does he eat his breakfast?.....
4. Does he drink coffee or tea?....
5. Does he sleep with his window open?
6. Is he regular in habits of intestinal elimination?
7. Are there any physical defects that would retard his progress, such as headache, toothache, carache, etc?
8. Does he seem to enjoy school?
9. Does he worry over school?
10. What subjects seem most difficult?

A SAMPLE FROM THE FERNDALE, MICH., CARD SHOWS THE TYPE OF GENERAL HABITS BEING CHECKED AND THE TECHNIQUE

The Long Beach schools have a definite report card especially for the parents. It is as yet confined to a score of very general traits and habits plus space for extended comment.

LONG BEACH PUBLIC SCHOOLS

PARENT'S REPORT TO TEACHER

Name of Child..... Date.....

Dear Parent or Guardian:

Parents and teachers are partners in educating children. In order to meet this responsibility they need to work together; hence a report from home to school, as well as from school to home, is desirable. Since the school sees only a part of your child's life, information of the kind indicated below will help us in understanding your child and in better meeting his or her needs. Therefore, if you are willing to do so, we shall appreciate your commenting upon any or all of the items listed below. Additional information may be written in the space provided for comments. Whether or not you share this information with us, we are asking you to sign and return this form so that we may know you have received it.

Sincerely,

_____, Teacher

1. Does your child play actively in the fresh air and sunshine?
2. Does he sleep from 10 to 12 hours daily?
3. Does he eat his meals regularly?
4. Does he drink milk daily?
5. Does he seem tired after day at school?
6. Does he have certain home responsibilities?
7. Does he come home at the time you expect him?
8. Does he enjoy his school life?
9. Does he talk about his school interests at home?
10. Does he read at home?
11. Does he pick up his things without being told?
12. Does he obey willingly?
13. Does your child have companions of his own age?
14. Does he play happily with his friends?
15. Does he go on short trips with the family? (As harbor, airport)
16. Does he take care of a pet or garden?
17. Does he belong to a club? (As Cub Scouts, Brownies, Y.M.C.A.)
18. Does he take private lessons? (As music, dancing, art, speech)
19. How much time does he spend in daily practice?
20. What is his favorite radio program?

COMMENTS

Date..... Parent's Signature.....

EXHIBIT

The school library or the instructor should develop an extensive collection of new-type report cards for examination. Failing this, there are a number of good sources for ready reference.

1. *The Education Index*. Articles discussing and illustrating new report card procedures are appearing constantly.
2. *Office of Education*, U. S. Department of the Interior, publications.
 - a. *Report Cards for Kindergarten and Elementary Grades*, Leaflet No. 41 (1931), Rowena Hansen.
 - b. *Report Cards of Pupil Progress Recently Constructed for Elementary Grades*, Circular Number 169, November, 1936, Mary Dabney Davis. A supplement to Leaflet No. 41. Contains twenty closely-packed pages of illustrations, including specimens from all parts of the country.

EXERCISES

Individuals or small committees may report on current periodical literature dealing with new-type report cards.

SUGGESTED READINGS

- EVANS, Robert O., *Practices, Trends and Issues in Reporting to Parents on the Welfare of the Child in School* (New York, Teachers College, Bureau of Publications, 1938). Better on marking than on reporting, but useful.
- LANE, Robert H., *The Progressive Elementary School* (Boston, Houghton Mifflin Company, 1938), Chap. 10.
- National College of Education, *Curriculum Records of the Children's School* (Evanston, Ill., Bureau of Publications, National College of Education, 1940), Parts IV and V.
- Records and Reports: Trends in Making and Using Them*. Bulletin of the Association for Childhood Education, 1942. (Washington, D. C., Association for Childhood Education, 1942.)
- STRANG, Ruth, *An Introduction to Child Study* (New York, The Macmillan Company, 1938), Chap. 21.
- U. S. Office of Education, various periodical bulletins and leaflets.

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Knowing the Pupil As an Individual and As a Group Member

SECTION I

SECURING INFORMATION

Accurate detailed information concerning the learner is necessary for successful teaching. Preceding chapters have made this clear again and again; details will not be repeated here. Neither can goals be set nor teaching procedures be organized without accurate knowledge of pupil needs, abilities, ambitions, interests, rates of maturation, previous school and life experience, health, general home and cultural background, and many other phases of the pupils' lives. Learning difficulties, behavior problems, personality maladjustments cannot be diagnosed and remedied without accurate information about the past experiences of the pupils involved, their abilities and their temperaments. Evaluations of achievement cannot be attempted without the guidance which comes from analysis of background information. Educational and vocational guidance must be mere guesswork in the absence of comprehensive data about the individual. All these types of data are necessary for normal and average children as well as for the subnormal, the problem cases, and other special cases.

The traditional school often naively ignored all this. A few dishonest or lazy teachers defiantly refuse to base their teaching upon the nature of the learner, thus effectually sabotaging learning. Even many recently trained teachers are often unaware of important facts concerning their pupils. One study showed that one-fourth of the teachers queried knew approximately one-fourth of the information deemed necessary. In some instances teachers are far too overworked to make adequate studies of their pupils. In the absence of central cumulative records these teachers can do little.

A large number of instruments and techniques have evolved for securing continuous and voluminous information about the learner.

Permanent cumulative record systems contained the desired information. School systems are increasingly using cumulative-record systems which include many varied types of information. The systems vary from

simple 3 x 5 cards with as few as eight items, to extensive folders (10 x 16) with several cards within the folder, and including many items. One card covers one-hundred-seventeen types of information. The average number is between forty and forty-five. The total number of sub-points runs well into the hundreds. An analysis of several cards reveals that certain major categories occur rather consistently.

Personal data, name, birth date, race or nationality, sex, address, name of parent or guardian, date of original entrance to school

Scholarship (school marks), achievement-test scores, intelligence rating, social and character-trait ratings, emotional stability, social maturity, health, special abilities and disabilities, aptitudes, extra-curricular interests and activities, scholastic honors or prizes, punishments

School progress

Attendance, entrance and withdrawals with changes of residence

Home conditions and family history

Vocational and educational plans

College or vocation entered upon leaving school

Out-of-school employment

Photograph

Space for notes

Scores of cumulative record systems are in use and available for inspection. Many state and city school systems have developed cards of their own. Commercial publishing houses issue others. Various teachers' associations have contributed cards. The majority naturally reflect the traditional school, but with clear evidence of the modern developments. The Progressive Education Association has suggested the categories for a card fitted to the more modern schools.¹

1. *Personal pattern of goals.* "Since the school exists, in some measure, to help achieve the goals he (the pupil) sets for himself and to lead him to formulate ever clearer, more consistent, more attainable, and more socially valuable goals, it is important to ascertain what these goals are and to record progress toward them. This requires a carefully planned conference technique in which the counselor discusses with the pupil such areas of goals as his life work, school work, home and friends, sports, hobbies, the arts, reading, and other recreational activities." The pupil is to write out at intervals of perhaps a week or a month the goals in which he is interested and his success in attaining them.

2. *Records of significant experiences.* These are to be written out by pupil at irregular intervals.

3. *Reading records.* A record of the free reading, which is a good index of intellectual maturity. Must be interpreted on basis of type and quantity of material.

4. *Records of cultural experience.* Attendance at plays, concerts, listening periods on radio, etc.

5. *Records of creative expression.* Diederich is not certain about the way in which this should be reported. He recommends that teachers experiment. He suggests that some common elements might be: names of pupil and teacher, date, the name, title, or subject of the creative product, the medium or materials.

¹ Paul B. Diederich, "Evaluation Records," *Educational Method*, Vol. 15 (May, 1936), pp. 432-440.

the approximate number of hours of work represented, statement by the pupil of the purpose, or central idea of his product, what he learned in creating it, and how successful it was in achieving his purposes. An interpretation by the teacher should be included.

6. *Anecdotal records of pupils*, with an interpretation by the teacher.
7. *Records of conferences*
8. *Records of excuses and explanations*
9. *Records of tests and examinations*, with an interpretation by the teacher
10. *Health and family history*
11. *Oral English diagnosis*. A diagnosis of the pupil's pronunciation, enunciation, quality of voice, diction, usage, force, etc., without knowledge of pupil, to be used in subsequent work
12. *Minutes of student affairs*
13. *Personality ratings and descriptions*
14. *Questionnaires*. These include all interest and personal questionnaires pupils are asked to fill in. They should be interpreted and filed in the pupil's folder.
15. *Records of courses and activities*
16. *Administrative records*

The nature of the information recorded. Many of the categories in the cards used by various school systems are self-explanatory, whereas in others interpretations differ from system to system. School marks may be recorded by subjects, by divisions within subjects, by broad fields, or in terms of understandings, appreciations, and the like derived from the subject. They may be entered quarterly, semestraly, annually, or at irregular periods: in per cents, by letters, descriptive terms, paragraph descriptions, or statistical indexes. Achievement-test information usually includes in addition to the score, the name of the test, the form, and the date on which the score was made. Some records include extensive data giving norms for ages and grades, percentile ranks and the like. Many record the relation of achievement score to intelligence rating. A few include profile or graphic representation.

The social and character-trait ratings are usually in the form of judgments expressed in terms of a rating scale or check list which is either included in the card or used separately with only the result noted. One hundred different traits, approximately, appear once or more in the widely used cards, though a single card rarely includes more than eight or ten. The average is four or five. There is little uniformity or agreement among cards on this item. The trait names are often misleading because of overlap between synonymous terms, and confusion between traits and symptoms. Investigations show, however, that trained raters using clearly defined terms will agree sufficiently to produce ratings of value in diagnosis and guidance. Ratings of emotional stability and social maturity are not yet common but are clearly increasing.

The health records contain similar items from card to card though the amount of information and the method of recording vary greatly. Teachers should be trained to recognize the common symptoms of every-

day illnesses and to detect physical abnormalities. Rogers recommends the following items for the record: ²

Has had: Measles; scarlatina; diphtheria; whooping cough, mumps; frequent sore throat, rheumatism; earache; running ear; frequent colds, dyspepsia; epilepsy.

Has now: Chronic cough, headache, blurred vision; unpaired hearing, bad breath.

Habits. Sleeps 6-7-8-9-10 hours, windows closed. Uses coffee; tea, tobacco, candy between meals. Bowels irregular. Plays in open air 1-2-3-4 hours. Works 1-2-3-4 hours after school. Does not wear overshoes in wet weather.

Home conditions. Poor, bad. Food inadequate. No breakfast.

Physical defects:

Genetal appearance: Thin; obese; poor color, listless, drooping.

Height Weight

Nervous symptoms: Speech defect; tic; excitable; dull

Face: Unclean; pallor; cyanosis; skin disease, other.

Hair: Pediculosis; ringworm, favus, unclean.

Eyes: Headache, errors in reading, book too close, congested lids; crusted lids; sty; inflamed; letter test RE-LE; with glasses RE-LE

Ears: Discharge; audiometer, voice, or watch test. Right ear, left ear.

Nose: Discharge; obstruction

Throat: Inflamed, tonsils diseased; obstructive.

Teeth: Decayed permanent; need adjustment, diseased gums; unclean.

Neck: Lymph glands visible, easily palpable; goiter.

Chest: Asymmetrical, expansion poor, expansion unequal.

Heart: Enlarged, irregular; rapid, shortness of breath on exertion.

Abdomen. Hernia.

Back: Scoliosis; rotation of spine; stoop; hunchback.

Upper extremities: Unvaccinated; hands cold; cyanotic, skin disease (scabies, ringworm, other).

Lower extremities: Clubbed; shoe deformities; turned inward.

Clothing: Insufficient; too much; ill kept.

Shoes. Ill fitting.

Summary of correctible conditions

Recommendations of physician:

Parents informed:

Treatment

Results of treatment:

Special abilities, disabilities, or aptitudes are recorded in the form of scores, or of exhibits of work done, or of teacher comments based upon observation. Extra-curricular interests are usually indicated by records of participation, office held, honors won. Distinction is often made among intellectual, social, athletic, cultured, and hobby activities. Students' accounts of their own special interests are sometimes included. These may be answers to questionnaires or original paragraphs composed by the pupil. School progress is shown by age-grade progress records, regular or irregular promotions, grades repeated.

² J. F. Rogers, *What Every Teacher Should Know about the Physical Condition of Her Pupils*, U. S. Office of Education, Pamphlet No. 68.

Home conditions and family history usually include:

- (1) Occupation of (a) father and (b) mother
- (2) Number of brothers and sisters
- (3) Nationality of parents
- (4) Education of (a) father and (b) mother
- (5) Place of residence: with mother, father, uncle, aunt, grandparents, brother, sister, guardian, alone, married, or in institution
- (6) Marital status of parents. (a) divorced, (b) separated, (c) remarried—father, (d) remarried—mother.
- (7) Citizenship of parents
- (8) Ability of parents to read or write English
- (9) Race of (a) father and (b) mother
- (10) Religion of (a) father and (b) mother
- (11) Health of (a) father and (b) mother
- (12) Home surroundings, rating of
- (13) Home atmosphere, rating of
- (14) Neighborhood, rating of
- (15) Associates, rating of
- (16) Amusements
- (17) Use of leisure hours

Home and neighborhood ratings involve the use of fairly complicated social-rating cards which enquire into all manner of material and cultural factors which are significant for the health and learning of the child. Twenty or so cards are available which rate total home background and selected items within the home or within the neighborhood.⁸ The best known is probably the Sims Score Card for Socio-Economic Status which contains twenty-three questions. The following are samples:

1. Have you a telephone in your home?
3. Do you have a bathroom that is used by your family alone?
7. Did your father go to high school?
10. Do you have your own room in which to study?
13. Does your mother belong to any clubs or organizations of which you know?
16. Where do you regularly spend your summers?
20. How many magazines are taken regularly in your home?

All formal and informal instruments of evaluation, diagnosis, and marking supply data. The score or more of instruments and techniques described in the immediately preceding chapters all supply data for the cumulative record or may be used by the teacher to secure the data. Tests, formal and informal, examinations, check lists, scales, codes, diaries and logs, behavior records, diagnostic instruments, interviews, inventories, time samples, exhibits, and marks are all useful.

Special, direct inquiries may also be made by teachers. Specific and more detailed information must often be secured by individual teachers

⁸ Charles K. Wang, *An Annotated Bibliography of Mental Tests*. Two volumes. (Peiping, China: Catholic University Press, 1939-1940.) Available in many libraries in the United States. Pages 415-422 contain extensive listing of rating cards, scales, etc.

direct from the pupils. Bruce and Freeman⁴ refer to a number of interesting devices as "projection techniques" because the pupil expresses or "projects" his interests, desires, attitudes, or views. The devices are seemingly innocent but are designed to bring to light personal data. Interests, attitudes, and views that are overtly observable are corroborated and sometimes explained. Many interests and views which are hidden and unsuspected by parents and teachers will also often come to light.

Pupil autobiographies are widely used and often reveal very significant items. Free compositions on topics chosen by children are excellent devices for securing insight into the experiences and nature of the learner. Often, compositions may be suggested dealing with reasons for liking books read, movies seen, games chosen, and the like. Requests to tell what studies might be added to the curriculum and which dropped, or plans for future study are useful. Drawing, making things, and the choice of voluntary projects all aid in revealing the personality. Certain of the psychological tests are also useful here.

Pupil interests may be discovered through direct listing by the child or through a prepared questionnaire. Sometimes needs and problems are included in the same questionnaire, or they may be listed separately. Schorling suggests the following compact list for preliminary inquiry:⁵

QUESTIONNAIRE ON INTERESTS AND NEEDS OF PUPILS IN
JUNIOR AND SENIOR HIGH SCHOOLS

Directions: In order to be of more help to boys and girls, we are trying to find out some of the things that interest them, some of the things that trouble them, and some of the things that they want to know more about

Will you assist us by thinking very seriously about a few questions and by answering them carefully?

You need not sign your name, so do not be afraid to write whatever is in your mind.

School. Grade. Age. Sex.
Senior-high-school course

PART I

1. What are some of the things that you like about school? (Underline the one thing that you like best.)
2. What are some of the things that you dislike about school? (Underline the one thing that you dislike most.)

⁴ William F. Bruce, and Frank S. Freeman, *Development and Learning* (Boston, Houghton Mifflin Co., 1942), pp. 246.

Bruno Klopfer, Douglas M. Kelley, and Nolan D. C. Lewis, *The Rorschach Technique: A Manual for a Projective Method of Personality Diagnosis* (Yonkers-on Hudson, N. Y., World Book Co., 1944). Advanced technical discussion for professional workers in personality problems. Teachers can examine briefly for general information concerning a technical procedure.

⁵ Raleigh Schorling, *Student Teaching* (New York, McGraw-Hill Book Co, 1940), pp. 39-41.

- 3 Which subjects in school do you think will do you the most good?
- 4 Which subjects do you think will do you the least good?
- 5 What would you like to have taught in your grade (or school) that is not taught now?
- 6 What other help or information which you are not now receiving would you like to receive in school?
- 7 In what ways do you think that your classwork could be made more interesting?
- 8 Think about the teachers you have had in school and name some things about teachers that you have liked (Do not name teachers)
- 9 Think about the teachers you have had in school and name some things about them that you have not liked. (Do not name teachers.)
- 10 How much time do you spend in study each day outside of school?
- 11 To what clubs or organizations do you now belong? in school? outside of school?
- 12 Do you attend church? Sunday school?
- 13 What club, social, or leisure-time activities do you wish your school would provide?
- 14 What social activities do you wish the community would provide?
- 15 What other opportunities do you wish the community would provide?

PART II

(Give Part I and Part II
on different days.)

School Grade Age Sex

Senior-high-school course

1. In what particular thing are you most interested?
2. What things do you most enjoy during your spare time?
3. What magazines do you read?
4. What kinds of books do you like best?
5. What kinds of news do you read in the daily newspaper?
6. How often do you attend movies?
7. What is your favorite radio program?
8. What means of recreation do you have:
at home? in your neighborhood?
9. Write down some of the things that trouble and worry you about:
 - a. school?
 - b. home?
 - c. your health and appearance?
 - d. personal traits, habits, feelings?
 - e. boy-and-girl relationships?
 - f. getting along with others?
 - g. your vocation (your future work)?
 - h. money matters?
 - i. religion, death?
 - j. other things?

(Go back and underline the one
thing that worries you most.)

- 10 Do you have a regular allowance? What kinds of things do you buy with it?
- 11 When you have a personal problem, to whom do you go most often?
- 12 What do you consider your strong points to be?
- 13 What do you consider your weak points to be?
- 14 Are you having an opportunity to develop your talents? (If not, why are you not?)
- 15 What work besides school work do you do outside of school?

The individual as a member of a social group. The reaction against the traditional lockstep school inaugurated a period of great emphasis upon the individual child. This was highly desirable as a corrective to early mass education. Emphasis upon the unique nature of the indi-

vidual and upon individual differences must not blind us, however, to the importance of knowing about the pupil as a social being, as a member of a group. Many problems cannot be solved by data, no matter how extensive, about the individual as an individual. Information about reactions within different types of groups is needed. How does a child act with his brothers and sisters, with parents, with other adults, with teachers, with older or younger groups of children, with children in the classroom and on the school grounds, at a picnic, in the neighborhood? How do children react to the separation of parents? How do they react to and with wealthier or poorer adults or children; to and with children of different color, race or nationality, religion?

Social growth and behavior, like all other aspects of growth and behavior, are relative to the situations in which they develop. Some children conduct themselves when with older and larger children in a manner which they never use when with younger and smaller children. Some boys are intelligent, competent leaders on the playground but are shy and retiring, even aggressively uncoöperative, in the classroom. The place of a child in the family (youngest, oldest, in the middle) and his size in relation to the children of the neighborhood affect his behavior. The presence in a given classroom of a football hero or of the most beautiful girl in school has a definite effect upon the patterns of behavior which develop in that room. The removal of either of these individuals changes the behavior of all other pupils. The same thing is true of the presence or absence of a known brilliant student, an unusually slow or stupid individual, of certain minority groups, etc.

The importance of group-behavior factors has been clearly suggested in the chapters on evaluation and diagnosis, particularly the latter. Many a peculiar piece of conduct, many a success or failure, problem cases, and the like are explained not by strictly individual data but by data about the individual-in-a-group. Huge amounts of data will be secured as instruments already discussed in terms of evaluation and diagnosis are used. Still other types of information are suggested by the devices in this chapter. The teacher will be chiefly concerned in ordinary cases with social behavior within the classroom. English and Rainy,⁶ who have one of the best discussions of social development, suggest the following questions:

1. *Is he accepted by other children?* By all of his classmates or just a few? How warmly do you think he is accepted or liked? Does he have a few particularly good friends? Does he have a few or many "enemies"? If rejected, is he rejected by both sexes or just by one? On what do you base your answer?

2. *How much does he participate:* (a) in recitation or other formal school-room activities? (b) in the more social activities such as playing games or talking to a neighbor? Does he seem to participate more than the average child in

⁶ Horace B. English and Victor Rainy, *Studying the Individual School Child*. (New York, Henry Holt and Co., 1941), p. 65.

both (a) and (b) or less? Your evidence? If he withdraws, is it from particular children or from all? from some activities or all? from the teacher?

3. *Does he come into conflict with the rules of the class?* With the habits and customs of the other children? occasionally? frequently?

4. *Does he seem to have a feeling of responsibility to the group?* to certain children or to the whole class? When things go wrong with another child, does he try to help? Does he defend class standards or does he defend wrongdoers? Does he defend wrongdoers if they are particular friends?

5. *Does he usually seem to be cooperating in social activities or competing?*

6. *What is his relationship to the teacher?* Does he seem to like her and does she seem to like him? Is he docile and compliant? take her for granted? seem to be simulated by her? Is he made ill at ease and self-conscious when she pays attention to him? Is he encouraged by her praise? How does he take rebukes she administers to him?

These general questions can be asked about every child. Many other aspects of social behavior may be important in describing the social adjustment of the particular child you are studying. The kind of clothes worn may have marked influence, for instance. You are specifically cautioned, therefore, not to limit your statements to these questions.

The problem of the individual-in-a-group has not had the attention it deserves until quite recently. A few excellent investigations are available, done chiefly by social workers and psychiatrists.⁷ Psychologists and teachers will find this an inviting field for both careful research and informal inquiry.

Making information available to teachers. Teachers have argued among themselves for years as to the value and the ethics of passing on information about individual pupils from teacher to teacher, either by word of mouth or by statements in school registers. It is said that such information may very seriously handicap a student in the eyes of the next teacher, or give a student marked advantage. All types of prejudice and bias, favoritisms, partiality, and the like are feared. The whole argument indicates a serious deficiency in professional information and attitude. The competent teacher knows, first, that a given individual's behavior is determined in part by the surrounding circumstances and that changes do take place with changed situations. She knows, second, that good teaching is quite impossible without adequate detailed information. All information available may be freely exchanged by trained teachers of mature mentality. The total picture gathered by the school concerning any and all pupils should be open to any teacher. A high school which recently installed an extensive and expensive "guidance" department soon developed a truly huge amount of valuable data about all students. Teachers who asked for information to help

⁷ F. Redl, "Group Psychological Elements in Discipline Problems," *The American Journal of Orthopsychiatry*, Vol. 13, 1943, pp. 77-81.

Stuart M. Stoke, "A Social Analysis of the Classroom," *Bulletin of the Division of Child Development and Teacher Personnel of the Commission on Teacher Education of the American Council on Education* (Chicago, Ill., 1940).

A few other studies are available.

them diagnose difficulties and aid pupils were told that all the data must remain "confidential"; it could not be given out. This defeats the central purpose which directed the collection of the data.

EXHIBIT

Instructors and teacher-training institutions should develop extensive collections of cumulative records cards which may be examined by students.

EXERCISES

1. Report results of using any of the "projective" techniques with your pupils.
2. Report a case study, without name or other identifying items, secured from a cooperating school system.
3. Exhibit and point out strong and weak points of the cumulative record system in use where you teach.
4. An extensive and detailed report should be made by a small committee on the developing literature on group analysis. The pupil-in-the-group and the effects of group membership on individuals is very important, and the brief treatment in the chapter should be extended through the perusal of current publications.
5. State as explicitly as you can on the basis of present level of training what value there might be to you as a teacher in knowing the:
 - a. economic status and general neighborhood from which a given pupil comes;
 - b. place of the child among his siblings,
 - c. one thing the pupil most dislikes doing;
 - d. psychiatric facts about aggression-domination characteristics, frustration, daydreaming, or any other item.

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Standard texts in *Child Study*, in *Psychology of Adolescence*, and in *Guidance* all contain valuable material on this topic but are not listed here since it is assumed that students will meet this material in other courses. These volumes are easily located if they need to be used here.

The periodical literature is peculiarly rich upon this topic. The new emphasis upon the individual-as-a-member-of-the-group is chiefly discussed there since it has not yet appeared extensively in texts.

SECTION 2

ADJUSTING TO INDIVIDUAL DIFFERENCES

Probably a very early generalization on the part of every child is that one parent is more easily handled than the other. It is soon learned that some people are good-natured, others not; some are quick, some slow, etc. The fact of individual variation is obvious and may be observed everywhere. The veriest beginner in teaching will note that

pupils differ materially in many ways. Although children of any age group have certain fundamental characteristics in common, thus making group instruction possible, they do differ greatly in many details, thus making individual attention necessary. No two children in any class will have exactly the same inherited tendencies. Each will have been influenced by all the myriad factors in differing home, school, and street environment.

Sex differences. Differences owing to sex are neither so great nor so important for learning as once thought. Boys as a rule are more active and aggressive, less neat, and less exact than girls. Boys possess funds of information from reading and from outside contacts that girls do not have, and vice versa. Differences in informational background, however, are becoming less under modern conditions of life. The sexes seem to differ also in certain social reactions, boys being more pugnacious and impatient of restraint; girls, more docile and sympathetic.

The sexes differ greatly in certain interests and special abilities, but these are usually the result of training or social pressure. The social order is only now freeing itself from centuries of belief in the inferiority of women. Certain attitudes have developed toward women which in turn determine many of the interests and occupations open to women. Furthermore, the part to be played by each in the world has further accentuated the differences in interests, tastes, and skills. Girls are not given mechanical toys and are not expected to study the physical and mechanical sciences, whereas boys are directed to these fields. Girls are more often guided to esthetic fields and to those connected with home-making. The war is rapidly breaking down the barriers which have kept girls out of certain occupations.

Differences in intelligence. There is no real difference in mental ability between the sexes. Social pressure and training mentioned above account for seeming differences.

Differences between gifted and dull individuals. Bright or dull children tend usually to be well or poorly developed in all traits except when environmental influences, chiefly special education, interfere.

The differences among imbeciles, morons, ordinary children, and very bright children are obvious, and no one denies that they need differing treatment and do differing amounts of work. But in the ordinary school-room the differences are much less marked than those just mentioned, and are more difficult to detect. Even when the class is divided roughly into three groups—slow, average, and fast—these groups shade off imperceptibly into each other. With a normal distribution of intelligence, the lowest 10 per cent of the class is not capable of doing anything like the amount of work covered by the highest 10 per cent, nor even as much as the middle 10 per cent. Sometimes the distribution will be such as to place the majority of the class toward the lower end of the curve; sometimes, well toward the upper end.

Recent research on the nature of intelligence and its measurement seems to indicate that though limits for individual development are set, the limits for most normal people are relatively wide. It is also indicated that original differences in intelligence, though modifiable, tend to persist; that is, the bright child tends to remain bright; the dull one, dull. Furthermore, contrary to popular belief, the bright child is also likely to be physically active, socially developed, and interested in a variety of things. He will usually play more games than the duller classmates, enter into more activities, display leadership in various ways. He is not an anemic bookworm, but is, paradoxically, more normal than the normal child.

The following generalized characteristics for gifted and dull children are recognizable and of assistance to the teacher.⁸

For the bright pupils:

1. Ease of assimilation and, as a rule, quick reaction time—ability to absorb the same amount of material in a fraction of the time required by an average group. Power to learn is a distinctive characteristic of gifted children. They show marked ability to “absorb” knowledge much more quickly than average children. They read more rapidly, remember more, and with greater vividness. Superior students have a greater degree of concentration, waste less time, and grasp an idea at its first presentation.

2. Voluntary power of sustained attention, mental endurance, and tenacity of purpose—gifted pupils have unusual power of focusing their attention upon a task; and they are able to stay by a thing without fatigue longer than the average.

3. Intellectual curiosity, originality, and initiative—the superior student is comparatively self-directing.

4. Power of generalization—they quickly see underlying principles, relate similarities, and foresee results.

5. Ability to work with abstractions—the gifted student not only learns facts, but he also delves into the principles underlying the facts and into the inferences to be derived from them. Generally speaking, the gifted pupil is superior in quickness of observation, in wealth of associated ideas, in power of discrimination, and in reasoning ability.

6. Ability “to know when they do not know”—many gifted children seem particularly competent in self-criticism.

7. Versatility and vitality of interest—this is closely allied to their wide range of interests in the degree of special talent found among gifted children.

⁸“Vitalizing the High-School Curriculum,” *Research Bulletin of the National Education Association*, Vol. 7, No. (September, 1929).

An interesting and valuable body of material concerning the nature and development of intelligence and concerning the characteristics of different levels is to be found in the series of studies by Wellman and Stoddard and the critiques thereof.

National Society for the Study of Education, *Iowa Studies on the Effects of Schooling, Thirty-Ninth Yearbook*, Part II, pp. 377-399. Good general reference.

National Society for the Study of Education, *New Evidence on Environmental Influence on Intelligence, Thirty-Ninth Yearbook* (1930), Part I, pp. 307-365.

See other articles by Beth L. Wellman and George D. Stoddard, by Florence L. Goodenough, and by various others who debate the findings.

For dull pupils:

1. Slow in reaction time—it takes them longer to think things through than the average pupil. They are slow in getting under way and weak in transfer, and use a thing in the situation in which they learn it. They cannot transfer it out of its original setting. Hence the dull child must acquire through direct teaching much knowledge that the bright child acquires incidentally.
2. Short in span of attention—they lack ability to carry a sequence of ideas long enough to reach a point off in the distance.
3. Illogical—this is partly owing to their limited number of ideas. The amount of material assimilated and used in a given situation is limited. The dull pupil usually becomes a pattern-reaction individual, for, lacking the ability to organize things for himself, he tries to live by rule-of-thumb. Dull pupils have little initiative. They are better able to execute than to plan. The dull pupil understands and learns general processes through situations in which specific habits and automatic responses are formed. Dull pupils are dependent upon constant guidance and sympathetic encouragement of the teacher.
4. Inability to take a body of material and out of it to draw facts which are pertinent to the problem in a given situation.
5. Inability to work with abstractions—dull pupils think most often in terms of immediate objectives, and they deal largely in things concrete. With dull pupils, we must put emphasis upon details, not upon broad general ideas. The dull pupil generalizes and applies processes only to problems well within his training and experience.
6. Lacking in power to evaluate their efforts, and consequently often unable to correct their failures.
7. Narrow range of interests
8. More emotional in attitude than the superior pupil

Differences in special capacities and abilities. If any group of children is given a set of simple arithmetic problems well within their grasp, one or two pupils will do from three to six times as many problems as one or two other pupils, the rest of the class falling in between. In one class a pupil did three problems while a classmate was doing twenty. In another class one pupil did five while his seatmate did forty-four. The median student in one of these classes was four times faster than the slowest student. In a spelling class, one boy got twenty words right while a classmate got ninety-six, the median pupil getting seventy. Differences in speed of reading between the fastest and the slowest pupil may be as much as nine to one. Knowing this becomes highly important in high school and college when it is realized that one pupil may actually read fifty pages of print while a classmate is reading six to eight pages. Differences in comprehension are also great. Wide differences can be noted in ability to express one's thoughts orally and in writing. Similar differences are noted in motor skills, in taste, in appreciation, and in other items.

These special abilities rest in part upon inherited capacity, in part upon training. Recent research indicates that the ordinary capacities needed in daily life are rather evenly distributed. That is, an individual is likely to be reasonably good, or rather mediocre, or quite poor in all

fields rather than strikingly good in one or some, and mediocre or poor in others. Although there are undoubtedly genuine cases of being "born short" and "born long," this doctrine needs careful qualification. We cannot excuse poor performance in one subject coupled with obviously good results in most others. Poor performance is much more likely owing to lack of desire, lack of energy, personal whims than to being "born short." Pupils who perform well in some subjects can be expected to perform about as well in most others and vice versa. The few striking exceptions to this general rule should be treated sympathetically.

Students on all levels differ widely in personal and social qualities, and the school should do its utmost to develop capacity for leadership in those who show aptitude to develop ability to understand other people and to manage social situations. In some instances, the teacher may have to redirect or repress a wrong type of leadership if it appears.

Some children are quick but superficial, tending to shift attention rapidly and to be satisfied with mediocre results. Such children often even maintain that these results are good. These learners need to be held somewhat carefully for results and to be led to improve their own judgment or results. The quick, bright pupil usually has better comprehension and better learning than the slow pupil. Still other children are quick to resent control or differences of opinion. These children are usually positive in likes and dislikes and have poor judgment when excited. Fortunately, many of this type usually cool off quickly and may be very good thinkers when not excited. They need guidance in self-control through social means and in the suspension of judgment. Other pupils will be slow and their interest will be hard to arouse. Some slow pupils are good thinkers when interested; others, not.

Some first-rate thinkers of delicate temperamental balance go to pieces easily under fire of rapid questioning or examination. Still other children, especially older students who are overly emotional, are prone to take things too seriously. They need a little fun injected into the proceedings. They usually do better when handled quietly rather than by rebuke. Some students have "single-track" minds and tend to go to pieces temperamentally when the teacher tries to stimulate class discussion.

Racial and national differences. Teachers in the United States are concerned with this type of difference as are no other teachers in the world. Our large cities have whole schools filled with children of foreign-born parents: Italians, Bohemians, Poles, Greeks, etc. We have had similar groups of Germans, Irish, and Scandinavians, but these have been largely absorbed. The Jews and the Negroes constitute native but non-Aryan stock. Along our Southwest border, Mexican children fill many schools as do Japanese and Chinese on the Pacific coast. There is a very large literature on the physical and mental characteristics of various racial and national groups and upon their differences from one another and from typical early American stock.

The first and most important statement to make is that nearly all common opinions on racial differences are incorrect. National and racial prejudices are potent factors in producing seeming inferiority in attitudes, in learning in school, and in other performances. In this country, we see usually the poorest type of foreign peoples since commonly only the underprivileged emigrate. We think of Italians as short and swart, as slow learners but esthetically sensitive; of the Japanese as short and strong, as excellent memorizers, as proud and warlike; of the Chinese as strong, good memorizers, patient, docile, and non-pugnacious. This is because we see only one type, namely, that which emigrates. Our limited observation and literary practice cause us to think of the French as dark and highly excitable, rational and artistic; of the Germans as blond and phlegmatic, efficient in science and industry. The truth is that all physical and mental types are found in all races.

Early interpretations of intelligence-test scores held that there were marked racial differences in intelligence. This corroborated ordinary observation. But as in the case of physical traits, common-sense views and early interpretations were wrong. *First*, it was recognized that the language factor was vitally important since intelligence tests depend almost entirely upon oral and written language and reading. *Second*, further research brought to light the effect of environment, particularly schooling, of social and cultural surroundings upon the intelligence scores of our own American children. *Third*, foreign children made appreciably higher scores on tests for illiterates, which avoid the language difficulty, than they did on typical intelligence tests. *Fourth*, it was noted that foreign children and adults rated borderline or even lower by our intelligence tests were normally effective in familiar, necessary, and everyday activities. Types of stability, foresight, and planning were present which were wholly incompatible with the test results.

Historical evidence indicates that exceptionally high-grade intelligence must have been operative in the ancient Greek, Chinese, and Egyptian civilizations. In the case of the Chinese, a legitimate interpretation is that the dominance of certain religious beliefs progressively stifled this intelligence. Primitive tribes from time to time produce remarkable leaders. Among the American Indians, Chiefs Joseph and Geronimo were highly intelligent men by all ordinary and practical means of estimating intelligence.

What then becomes of our "Nordic superiority"? There isn't any! It is, of course, perfectly true that certain nationalities seem to produce numbers of outstanding leaders and to produce masses characterized by higher intelligence and skills than others. All the evidence points clearly to the conclusion that this is owing less to race and nationality, than to climate, the natural resources of the country, food supply, and to the dominant religious or political faiths. The extent of free educational opportunity is known to be vitally important. This is but further illus-

tration of the laws of growth as previously set forth. These laws hold for all races and nationalities.

As with physical differences, it was seen that the differences were not primarily racial but owing to environmental causes, sometimes so long continued as to produce differences which cannot be overcome in a short time.

Environmental factors are the key. Upper-class Italians are tall and intelligent. In fact, a typical Roman business executive, entrepreneur, or professor looks much like his colleague in London or New York. The favored classes in Japan are nearly as tall and quite as intelligent as similar classes in any European country. Dr. Tadasu Misawa, measuring nearly one million children, believes that the Japanese are improving structurally.⁹ Economic, social and other environmental factors are more important than race. Japanese children born and reared in California are well above Japanese averages for height and weight. American children in the same state are above the norm for the United States. In China, children eat food of about one-half the caloric value of that of American children. Their *average* height and weight, heart beat, and vital index are lower; but the *growth curve* is entirely normal.

At age twelve, American children are two inches taller and six pounds heavier than English children. American boys of today between six and eighteen are significantly taller than those of fifty years ago. This is attributed to our higher standard of living, less child labor, better food, more leisure, better health knowledge, etc. Studies of European nations show that wars regularly reduce the average height of the nation significantly and that a generation is necessary for recovery.

The modern scientific view. There are, then, no basic and permanent differences between races. There will be large, serious, and measurable differences, however, between given groups in a given situation. The foreign children with whom our school system deals are usually the children of unskilled or semi-skilled workmen. They come from homes of low economic and cultural status. Language difficulties will be common. Differences in speed and type of learning will be marked and important. Poor nutrition will produce differences in height, weight, and energy. Long centuries of underprivileged life have had their effect. These groups will differ significantly from each other and very much from some American children. What is often overlooked is that these children will not differ greatly from American children of the same social and economic level.

Special reports should be made on studies dealing with locally prominent races and nationalities. Students must be exceptionally careful, however, in interpretation. The studies vary in reliability, in extent, and in recency. The utmost care will often be necessary to determine just

⁹ "A Few Statistical Facts from Japan," *The Pedagogical Seminary*, Vol. 16 (March, 1909), pp. 104-112.

what a study does show. Simple local investigations may be made if facilities permit.

Summary statements may be of value:

1. Common opinions regarding racial and national differences are usually incorrect.
2. These opinions are incorrect because based upon limited observation of non-typical cross-sections.
3. Comparisons between similar social and economic classes within two groups are safer than comparisons of averages for the whole group
4. Mental and physical characteristics of all types and levels are found in all races and nationalities alike.
5. Some races and nationalities seem to have a larger proportion of desirable mental and physical traits.
6. The superiority of certain groups results less from race than from a large number of environmental factors and to combinations thereof.

Obviously, the task of education and of the school system and those operating it is to eliminate in so far as humanly possible the unfavorable differences. This is done by compensating for poor home background and environmental factors, by combating racial prejudices. The school must make up when it can for deficiencies in social and cultural contacts, in nutrition, and in health knowledge.

Teachers' adjustment to the fact of variation among learners. *Errors to avoid.* There are ordinarily three errors made by teachers in reacting to variation among learners. One is ruthlessly to override anything of the sort and to teach as one wishes to teach, or as the plan book says to teach, regardless of intelligence level, special ability, temperament, or other item of variability. This teacher usually teaches to the middle group in the class. The second error is to overstress either extreme. The dull group gets far more than its share of time in patient coaching in and after school. A few very bright and unusually gifted children are exploited at the expense of the majority. The third type of error is a common one with naïve thinkers, namely, thinking of other people in terms of one's self. This teacher understands only those pupils in the class who approximate her own speed or slowness of thought, her temperament, her breadth or narrowness of view. They fare well; but the wrath of the ruling goddess is visited upon those whose minds, temperaments, and reactions differ from hers. However, the vast majority of teachers with modern training and view are keenly aware of the problem, and sincere in their desires to adapt instruction within reasonable limits to meet the situation. Many teaching and administrative devices have been worked out to aid teachers.

Instructional provisions for individual differences. Teachers may make a number of direct and immediate adjustments to the individual differences in ability and interest found in their classrooms.

Assignments and the questions asked during the recitation must be carefully adjusted to the individual differences present in the group.

The whole supervised-study procedure is a major effort to make such adjustments. Details have been covered previously in Chapters 11 to 14. Individual instruction is the logical outcome of adjusting completely to individual instruction and is illustrated by the Winnetka and the Dalton plans, though each of these carefully provide also for social or group learning situations. The method of adjusting to individual differences which seems at the moment to be definitely superior is the modern procedure in unit teaching. The working period of the unit will care for more different types of pupil ability and interest than can any other procedure now in use. The use of varied and diverse activities was fully explained in Chapters 9 and 10.

Administrative provisions for individual differences. A number of methods for adjusting to individual differences go beyond the teacher's immediate control and require administrative provisions. The systems of individual instruction mentioned above are administrative as well as instructional in nature. In addition some of the standard devices in the elementary school are:

- Grouping of various kinds and on various bases
- Curriculum organizations into two- or three-track systems
- Special classes, opportunity rooms, skip sections, coaching classes
- Variations in load which may be carried in high school
- Irregular promotions
- Case studies resulting in special provisions

These are within the traditional school. The modern elementary school relies on social maturity grouping, frequent reorganizations of the groups, continuous progress, and the provision of the many varied activities within a good unit working period.

The table on page 533 summarizes the procedures most commonly used in high schools.¹⁰ Core curriculums and adaptation to high-school conditions of modern methods similar to those in the elementary have increased in number since this table was compiled.

DISCUSSION QUESTIONS

1. The instructor should obtain in advance enough practice sheets for one of the well-known arithmetic tests. Select easy problems in the fundamentals which can be worked with great speed. Give each student a sheet and allow ten or fifteen minutes for working. Place scores on board.
 - a. Note the lowest and highest score made.
 - b. How many times is the lowest score contained in the highest?
 - c. How many individuals approximated the lowest score? The highest score?
 - d. What is the most frequent score made, that is, the mode?
 - e. How many times is the mode contained in the highest score? The lowest score?

¹⁰ Roy O. Billett, *Provisions for Individual Differences, Marking and Promotion*, U. S. Office of Education Bulletin No. 17 (1932). National Survey of Secondary Education, Monograph No. 13 (1933).

FREQUENCIES WITH WHICH VARIOUS PROVISIONS FOR INDIVIDUAL DIFFERENCES
WERE REPORTED IN USE, OR IN USE WITH UNUSUAL SUCCESS, BY
8,594 SECONDARY SCHOOLS *

Provision	Use		Use with Estimated Unusual Success		Column 4 Divided by Column 2
	Number	Per Cent	Number	Per Cent	
1	2	3	4	5	6
1. Variation in number of subjects a pupil may carry	6,428	75	795	9	0.12
2. Special coaching of slow pupils..	5,099	59	781	9	.15
3. Problem method	4,216	49	444	5	.10
4. Differentiated assignments	4,047	47	788	9	.20
5. Advisory program for pupil guidance	3,604	42	540	6	.15
6. Out-of-school projects or studies..	3,451	40	439	5	.13
7. Homogeneous or ability grouping	2,740	32	721	8	.26
8. Special classes for pupils who have failed	2,612	30	350	4	.13
9. Laboratory plan of instruction...	2,611	30	323	4	.12
10. Long-unit assignments	2,312	27	349	4	.15
11. Project curriculum	2,293	27	365	4	.16
12. Contract plan	2,293	27	465	5	.20
13. Individualized instruction . . .	2,145	25	309	4	.14
14. Vocational guidance through exploratory courses	1,911	22	186	2	.10
15. Educational guidance through exploratory courses	1,900	22	193	2	.10
16. Scientific study of problem cases	1,343	16	146	2	.11
17. Psychological studies	1,077	12	70	1	.06
18. Opportunity rooms for slow pupils	946	11	172	2	.18
19. Morrison plan	737	9	175	2	.24
20. Special coaching to enable capable pupils to "skip" a grade or half grade	726	8	114	1	.16
21. Promotions more frequently than each semester	686	8	103	1	.15
22. Remedial classes or rooms	593	7	90	1	.15
23. Adjustment classes or rooms	544	6	55	1	.10
24. Modified Dalton plan	486	6	52	1	.11
25. Opportunity rooms for gifted pupils	322	4	69	1	.21
26. Restoration classes	191	2	24	0	.13
27. Dalton plan	162	2	15	0	.09
28. Winnetka technique	119	1	14	0	.12
29. Other	101	1

* Roy O. Billett, *Provisions for Individual Differences Marking, and Promotion*, U. S. Office of Education Bulletin No. 17 (1932). National Survey of Secondary Education Monograph No. 13 (1933).

f. How many were surprised at the range of difference even in a college class? Why were you?

Differences in a college class should be smaller than in high school or elementary group. Let us examine one of the latter groups.

2. Answer the question under (1) above for each of the following. In each table use the lowest score mentioned and the highest.

Speed of Reading in 3B Grade		Addition Problems Correct, 6th Grade		Speed of Reading in High School	
No. of Pupils	Words per Minute	Correct Answers	No. of Pupils	No. of Pupils	Words per Minute
1	76-100	5-6	1	2	76-100
8	101-125	7-8	1	1	101-125
4	126-150	9-10	4	20	126-150
3	151-175	11-12	4	27	151-175
2	176-200	13-14	2	49	176-200
1	201-225	15-16	4	29	201-225
		17-18	9	15	226-250
		19-20	13	17	251-275
		21-22	21	7	276-300
		23-24	13	0	301-325
		25-26	9	2	326-350
		27-28	12	2	351-375
		29-30	4		
		31-32	4		
		33-34	1		
		35-36	1		
		37-38	1		
		39-40	2		
		41-42	1		
		43-44	0		

If instruction is adapted to the mode or middle of the class, how much time will the brightest pupils have to waste? How many times too fast for the slowest?

3. The class should mark with a (1) the occupation in the list below which they like the best, with a (2) the next best, and with a (3) the third best. The instructor will prepare a table on the board as students read off their choices.
- Note the disagreement.
 - Wherein are these differences quite unlike those illustrated in questions 1 and 2?
 - How do you account for these?
 - Are such differences of any importance in teaching?

LIST OF OCCUPATIONS TO CHOOSE FROM

- Touring leisurely in your own car
- Reading detective stories, adventure, and romance
- Reading travelogues, the *National Geographic*, Scientific discoveries, etc.
- Sitting on the beach, lying in a hammock
- Seeing moving pictures

- (6) Hearing the symphony
 - (7) Playing bridge or other card games
 - (8) Playing tennis, golf, or other outdoor games
 - (9) Eating an excellent dinner
 - (10) Fishing
 - (11) Caring for a garden, growing flowers, etc.
4. A student judged to be of good average ability by the teacher is absent three months because of illness. Upon recovery he studies with a tutor for a very short time and rejoins his class, keeping up without difficulty. List three or four questions that this incident suggests to you, supplying tentative answers to your own questions.
 5. Parents and teachers have a great store of erroneous ideas concerning the way in which children differ, particularly concerning very bright or very dull pupils. Can you recall any of these? Discuss them briefly and list them for further discussion after study of the text.
 6. Is it true that "the more we study, the more we know"?
 7. To what degree should teachers permit pupils to concentrate on a special capacity? Analyze the several angles necessary in answering this question, and present a supported argument.
 8. Is the emphasis of most teachers upon students as groups of learners or as individual learners? Why? From your own observation illustrate particularly good and particularly bad practice.
 9. A high-school history class is made up about as follows: Two boys and eight girls are of the docile type who will "get" any assignment given. They do not *understand* what they study and have neither interest in it, nor ability to apply it. Three boys and two girls are intensely interested in history, reading independently both high-class historical novels and some original sources. They find the text and the class a bit slow and have probably more knowledge of historical thinking than the teacher. Six boys and five girls vary from good to poor. The boys aren't interested but understand it without great difficulty. The girls have no interest; it is "all Greek" to them. This latter group, not being docile, make little effort. You cannot, of course, solve this problem at this stage of the course, but what would you as a teacher suggest doing as far as you can see now?
 10. Why is the matter of adapting instruction to variation so seriously neglected on the high-school and college level?
 11. In a college-chemistry class one of the instructors did the lecturing and another the quizzing. Each was an expert in his line. Changes in administration necessitated that each do his own lecturing and quizzing. Each proved to be very poor at the other's work. State as specifically as possible what traits, abilities, and skills probably accounted for the difference.
 12. How do you think you would proceed (give simple suggestions) to adapt instruction to:
 - a. A girl of emotional type, superior ability in working with ideas, impulsive and suggestible
 - b. A boy who is "a man of action," a realist, preferring to deal with things and to deal quickly
 - c. A boy who is a good thinker, but oversanguine as to his abilities and results, and who has poor mental balance
 13. If there are not any serious differences in general ability owing to sex, how do you account for the fact that boys surpass girls at chess and at whist?
 14. How do you account for the fact, alleged to be true, that girls will not cooperate as well as boys?

15. Disregarding purely personal attraction, do you expect to find your most interesting students among the boys or the girls? Why?
16. Which will be more likely to regard criticism as a personal matter, boys or girls? Why?
17. A mother complains that the school and teacher are not giving her little boy a square deal. He is not being put through school as fast as his older brother was, or as fast as his playmate who lives next door. Organize a five-minute talk to make to this parent.
18. Bullett, who has worked on individual differences intensively, says that far more is known about adapting to individual differences than is utilized. The actual practice of teachers and administrators does not use much that is well known. Why do you suppose this is true?

READINGS

The references at the close of Chapters 17-20 are of value here and will not be repeated.

- BILLETT, Roy O., "Provisions for Individual Differences, Marking, and Promotion," *National Survey of Secondary Education*, Office of Education, Bulletin 17, Monograph No. 13, 1932.
- BUTLER, Frank A., *The Improvement of Teaching in Secondary Schools* (Chicago, The University of Chicago Press, 1939), Chap. 12, good discussion and questions.
- UMSTATTD, J. G., *Secondary School Teaching*. (Boston, Ginn and Company, 1937). Chapters 6 to 9 which have been referred to earlier in connection with unit construction contain much valuable material.

21

The Community As a Source of Learning Experiences and Materials

Previous chapters have made clear that the educative process is an interactive one. The pupil and his needs constitute one factor; the social group and its institutions, the other. The curriculum of a school is a living thing and is a part of the community. The community is a part of the curriculum.¹ The immediate goals of this curriculum are based upon pupil needs and maturities; the ultimate goals are found within democratic group life. Teaching methods; adequate understanding of the pupil; diagnosing learning difficulties, problem cases, or delinquency; evaluating results—all these necessitate extensive knowledge of the community which is the setting for individual life.

The tone of a community very vitally sets the tone of its educational system. The educational system can over a period of time affect the tone of the community. The wealth or poverty of the community inevitably affects the extent of facilities for education and the level of training among its teachers. The organization of a community, whether national or local, in terms of democracy or the lack of it, affects the philosophy and practice of education. The effects of a stratified, non-democratic community may be observed even within the democratic United States. The present chapter is chiefly concerned with the more immediate and practical aspects of managing learning in terms of the community. The philosophical background for the relation of community to education should have been developed in previous courses.

Surveying the needs, resources, and influences of the community. The intelligent planning of educational programs demands adequate information about local needs and conditions. This information is secured through community surveys which study the existing social, political, industrial, economic, and moral conditions. Surveys are made by anthropologists, sociologists, educators, and others.² The teacher may and should participate in any major survey made locally, though in larger

¹ Gordon W. Blackwell, *Toward Community Understanding* (Washington, D. C., American Council on Education, 1943). Prepared for the Commission on Teacher Education. A first-class handbook for teachers in service and in training.

² Probably the best known of the extensive surveys are those on *Middletown* by the Lynds. Others are available, particularly smaller local surveys.

and older communities the information is already available and is furnished through bulletins or other sources to the teacher. Continuing surveys to keep information up to date may include teachers as participants.

The teacher is more concerned with using the community survey approach to study the local environment in order to discover illustrative materials and situations which belong in the curriculum and which will make learning real and meaningful. Excursions and participatory learning experiences are planned on the basis of this information.

A survey will cover in general the geographic setting and influences, the origin and historical development, the economic life, political processes, social organization, and general pattern of the community. The Georgia State Department of Education presents a survey technique covering thirty-one pages.³ The detailed questions are direct guides for teachers or pupils. The chief headings relate to community provisions for:

Maintaining physical, mental, and emotional health

Earning an adequate living

Performing the responsibilities of good citizenship in the home, the state, the nation, and with other nations

Utilizing and controlling the natural environment for individual and social needs

Receiving and transmitting ideas: transporting persons and commodities

Expressing aesthetic and spiritual impulses

Utilizing education as a means of acquiring and transmitting the social heritage and as an agency for conserving and improving human and material resources

These general categories may be made clear through examination of the outline suggested by Wesley which was used to survey Cumberland, Wisconsin.⁴

COMMUNITY SURVEY OF CUMBERLAND, WISCONSIN

I. THE AREA: the city of Cumberland (location, population, chief industries); the trade area (extent, nature, accessibility to Cumberland)

II. PHYSICAL SETTING: topography; soil (original and present condition); drainage; rainfall; temperature

sources: geological survey of Wisconsin; topographical maps, weather charts, observations by students

III. HISTORY: settlement and growth; early settlers; outstanding events; outstanding individuals

sources: local newspaper file (since 1880); council, school, court, business, and church records; personal diaries, letters, etc.; interviews with old inhabitants

IV. POPULATION: number by age, sex, nationality; density; growth and decline (birth and death rates, movement into and from area); distribution of population as affected by nationality, location and roads, land values

³ *The Community as a Source of Materials of Instruction*, Bulletin of the State Department of Education (Atlanta, Ga., revised edition, 1938). pp. 38-69.

⁴ Edgar Wesley, *Teaching the Social Studies* (Boston, D. C. Heath and Co., 1937). pp. 436-440.

- V. FARMS: number and size, value; products (crops, livestock, fruit, fish, game); farm debt, tenancy, farm labor
sources: United States Census; Department of Agriculture yearbooks; County agricultural agent's records; register of deeds office; assessor's lists and maps; private farm records, questionnaires and interviews
- VI. BUYING AND SELLING: stores (number and type, ownership); buying in other towns; catalogue houses; cooperatives; peddlers; summer resorts
sources: business records, records of freight; bank statements; assessor's lists; interviews
- VII. MANUFACTURING: number and types of establishments; employees, distribution of products
- VIII. FINANCE: banks; savings-and-loan associations; federal agencies; extent of mortgaged property, insurance (types, prevalence)
- IX. TRANSPORTATION: passengers (train, bus, automobiles); freight (train, trucks); roads
sources: enumeration of passengers, train, bus, and truck records
- X. COMMUNICATION: telephones; radios; telegrams; volume of mail
- XI. OCCUPATION: professions, doctors, lawyers, etc.; trades, barbers, plumbers, etc., farmers, number; laborers, number and status
sources: interviews
- XII. DISTRIBUTION OF WEALTH: per capita; incomes; wages; rental values; unemployment
sources: United States Census; income tax returns; payroll records; relief records
- XIII. STANDARD OF LIVING: housing (city, types and conditions; country, types and conditions; hotels), conveniences (bathrooms, electricity, telephones, radios, automobiles per capita)
sources: observations; interviews; United States Census; insurance records; questionnaire for pupils
- XIV. HEALTH: prevalent diseases; doctors and nurses; health regulations, water supply; sewage disposal
sources: interviews; county and state health records; observation, school health records
- XV. EDUCATION: schools (city and country, attendance, curriculum, equipment, faculty, costs, graduates); library (books available, circulation records); adult education (types of classes, attendance); lectures, etc.
sources: school records; attendance records, library files; circulation records
- XVI. CHURCHES: number and kinds, membership; attendance, activities; ministers
sources: membership lists, conference records; marriage and Sunday-school records
- XVII. GOVERNMENT AND POLITICS: mayor and council; town officials (number, duties, etc.); taxation (types, disbursements, indebtedness); political alignment (parties, percentage of active voters)
sources: State laws; city charter; statutes; city council proceedings; town board proceedings; court records; election returns, *Wisconsin Blue Book*
- XVIII. RECREATION: public (parks, playgrounds; hunting, fishing); commercial (picture shows, pool rooms, beer rooms), recreational clubs
sources: advertisements, observations
- XIX. SOCIAL IDEAS AND STANDARD: political and social clubs, local leaders; crime; divorce; attitudes toward Sunday amusements, drinking, smoking, dancing
sources: newspaper files; court records, observations, interviews

Surveys reveal to both teacher and pupil the needs and resources of the community. Weaknesses or lacks in community facilities may be publicized. Pupils may participate in public campaigns for rectification. Children through their own activities will learn to choose, to judge, and

eventually to participate in community activities. The school will often need to develop definite programs designed to counteract community influences which are too strong to be changed but which are detrimental.

Utilizing community resources. Steady progress—recently very rapid progress—has been made in using the real conditions and materials of the community. Vitality and meaning result; verbalism is counteracted. Pupils do not study about economic processes, about the advantages and weaknesses of the present business system, about various social problems; they learn through direct contact with the actual situation. Pupils on all levels, including those in college and teacher-training institutions should see how their fellow citizens of all economic levels earn their livings, are housed, secure their recreation, exercise their religious feelings, interact with other communities including the international community. The participation of laymen in all types of human activity on all economic levels, representing all races and creeds, should be invited and encouraged. Not only should the community be brought into the classroom, but the class should go out to meet the community.

The activities which will bring pupil and community into interaction with each other may be (a) observational, (b) participatory, or (c) contributory. The majority are and may perhaps remain observational. The contributory type was unknown a few short years ago but is now definitely on the increase. It is by far the most important.

Observational contacts. These are usually in the form of excursions to municipal offices and plants, factories and other industrial establishments, public utilities, recreation social service centers, farms, stores, etc. The following list of excursions designed for teacher education is so enlightening and so easily translated into pupil excursions that it is reproduced in full.⁵

SYLLABUS OF A FIELD COURSE FOR TEACHERS

Field Study No. 1. Levels of Living. What is the American standard of living?

The answer is found by visiting middle-class homes in the suburbs, tenements on the East Side, luxurious uptown apartments as well as the resorts of the destitute such as rooming houses, missions, settlements, and squatters' shacks. Ventures in cooperative housing are also investigated as a part of this study.

Field Study No. 2. Racial Adjustments. Harlem, one of the largest Negro communities in the world, affords a unique opportunity to study the life of the urban Negro—his home, his religious activities, his education, his recreational opportunities, his ventures in business and industry, his contributions to art, literature, and music—and also the agencies at work to promote better interracial understandings.

Field Study No. 3. Foreign Cultures in New York. America in the making is the theme of this field trip. The varied culture patterns, characteristic of the foreign peoples who contribute to the cosmopolitan mosaic of New

⁵ New Jersey State Teachers College, *Field Study Courses in Social Science* (Upper Montclair, N. J., State Teachers College, 1935), p. 5.

York, are the direct objects of the study. Synagogue and cathedral, pizzeria and hofbrau, theater and folk festival, native school and assimilation agency, music and personal experiences, street scenes and tenements—all help to create an understanding and appreciation of the materials out of which our country is made.

Field Study No. 4. Economic Institutions and Conditions. Making a living is the major problem of most Americans. How it is done is seen in a sweat shop, a factory, a hotel kitchen, behind the scenes of a theater, in the plants that produce our newspapers and our automobiles, and in the banks and exchanges of the money mart. Economic institutions and conditions are studied in the light of changing social life.

* *Field Study No. 5. Transportation and Communications.* Some insight into the intricate mechanism of our system of transportation and communication is gained by visiting departments of the metropolitan railroad terminal, not seen by the casual traveler, the working sections of a large city post office, an ocean liner, a transcontinental telephone exchange, and a broadcasting station. During the trip the New York Regional Plan is explained by an authority using lantern slides.

Field Study No. 6. Government and Politics. All branches of the Federal government are represented in the metropolitan area. Typical peacetime and wartime activities such as the weather bureau and the navy yard are studied. In the realm of local government, the city hall and certain political clubs are visited, and various types of municipal services are studied in action.

Field Study No. 7. New Jersey Institutions. New Jersey state and county institutions are among the best in the country, but many citizens know little or nothing about them. Through direct observation, vivid impressions are gained of what is being done for the deaf, the insane, and the pauper. The state capitol and a typical county court house are visited, and the Essex County park system observed and explained.

Field Study No. 8. The Prevention and Treatment of Crime. Crime is a fascinating subject, but a sympathetic understanding of its causes and treatment can come only through visits to courts, police headquarters, reformatories, and prisons. The metropolitan area affords excellent material for this study.

Field Study No. 9. History of Manhattan and the Lower Hudson Valley. To understand any region one must know its history. Colonial and revolutionary culture patterns are rediscovered in such places as Fraunces Tavern, the Museum of the City of New York, Hamilton Grange, the Morris-Jumel Mansion, the Philips House at Yonkers, the Dutch Church at Tarrytown, Stony Point Battlefield, and the Andre region at Tappan. The route for this trip passes through beautiful scenic country, on both sides of the Hudson, from Manhattan to Bear Mountain.

Field Study No. 10. The American Revolution in New Jersey. To be able to read the history of familiar territory in the houses and hills, the roads and rivers, is a source of unending pleasure and entertainment. This study explores the high points of the Revolution at Morristown, Somerville, Springfield, Washington Rock, Washington Crossing, Rocky Hill, Princeton, Trenton, and Freehold.

12. How do people enrich their lives?

A recreational center	
A public library	A museum
The theater section	A radio broadcasting studio
13. How does a particular community exchange products with the outside world?

A railroad depot	
A steamship dock	An airport
14. How do people work toward another social order?

A meeting of a party aiming at social reconstruction	
Symposia, debates, and discussions	

A list in interesting contrast to the foregoing is supplied by J. D. Aikenhead, School Inspector, Claresholm, Alberta, Canada. The list was developed by a remote frontier school. Visits to

Fort Macleod

Nearby foothills to see water-shed, drainage basins, erosion

Over the first ridge of the Rocky Mountain foothills

Crawford-Frost herd of Hereford cattle (among the best on the continent)

Miss Annora Brown's painting at Macleod

The Claresholm model municipal hospital

Four airfields

Pat Burns' Ranch

A remote home in the foothills. (The young of the Prairie chickens and of the Hungarian partridge will come up to feed with the domestic fowl)

Beaver in the natural state (also many visits to extensive fields of wild flowers, birds, fish, and game in natural state)

A ski-meet

The Road Maintainer outfit (machinery, McMurray tail sands, gravel, sand, etc)

Observe a Chinook wind and its effects

Calf clubs, grain clubs, etc.

A cattle auction

A grain elevator

A small lumber mill

A demonstration farm

The auxiliary mental hospital (for harmless older people)

A flour mill

A creamery

Modern educational leaders were beginning to inaugurate programs of visitation between city and country, between regions, and between cultural groups. City children went on excursions through farming areas; rural children spent a week or more visiting a city or cities. Several groups from New York City went to visit the tenant farmers and Negroes of the South. These programs were expensive and will always be limited unless there comes a fundamental change in methods of financing education. The war put an end to such activities as were emerging.

Participatory contacts. Pupils take an active part in a large number of community enterprises. This not only adds meaning to their education

but initiates them into the affairs they will manage as adults. The war has made such activities prominent since children participate in all manner of drives, act as airplane spotters, and serve as messengers to adults engaged in some of the more complicated auxiliary services. Many activities had grown up in peace time also: the community clean-up campaign, an early and much overworked illustration of pupil participation; the control of pests from rats to tussock moths, a program carried on by regular city agencies and greatly aided by organized groups of children; traffic control; surveys of sanitary conditions and facilities, of mosquito breeding places; compilations of a tree census; the distribution of material prepared by city health and safety agencies; the repair of toys for distribution to less fortunate children; supervision of playgrounds. These and many other activities are still found in practice.

Contributory contacts. Learning situations of this type enable the pupils not only to learn and to understand the community better, but enable them to make an actual and effective contribution of their own to the community. The traditional school is particularly barren of these learning activities. The modern school has already developed an astonishing number of illustrations. *Progressive Education* contains a list of one-hundred-seventy actual illustrations gathered from the United States, Puerto Rico, Mexico, and Russia.⁷ These projects are briefly described and the source noted. They vary all the way from feeding birds in winter, and landscaping school grounds to placing a city electric system underground at a cost of \$8000. The summary should be read by all students.

The general categories under which the experiences were catalogued were:

Category	Number of Illustrations
General Civic Improvements	39
Bettering Agriculture	23
Conserving Forests and Soil	8
Developing Coöperatives	12
Exterminating Pests	5
Handicrafts	5
Health	28
Housing	7
Recreation	21
Improving Communications	7
Improving Classroom and School Environment	10
Miscellaneous	5

This type of vivid modern education is increasingly attracting the attention of prominent lay citizens. An excellent popular account similar to the professional summary in *Progressive Education* is found in Stuart Chase's article, "Bring our Youngsters into the Community."⁸

⁷ Morris R. Mitchell and others, "Youth Has a Part to Play," *Progressive Education*, Vol. 19 (February, 1942), pp. 88-109.

⁸ *Reader's Digest*, Vol. 40 (January, 1942), pp. 5-8.

Criteria for judging the value of community activities. Not all activities involved in a community are of equal value. Carelessly selected activities will be a waste of time and may even have undesirable results. It is necessary to check any proposed activity against a set of criteria.⁹

A. Criteria in terms of level of difficulty

There are several levels of difficulty that must be recognized in working out community studies. The criteria below are arranged so that one class may undertake studies which meet only the first groups; more advanced classes may attempt activities which meet a larger number. While a good community activity may not meet all of these criteria, the activities may be improved as they are revised to meet as many as possible.

1. Does the activity acquaint the pupils with the resources of their own community?
 - a. Does it relate to a phase of community life?
 - b. Is this phase of community life typical? If not, is it recognized by teacher and pupils as an atypical phase?
 - c. Is the study based on a fair picture of this phase of community life, and would it be considered fair by a person engaged in the activities relating to it?
 - d. Does the study show the relationship of this phase of community life to other phases in this community and in other communities?
2. Does the activity permit the pupils to envision the community as a social organism with human interrelations?
 - a. Does it permit the pupils to see as many of the social and economic forces which cause community life as is possible with this age group?
 - b. Does it offer contact with persons who are seen as human beings with needs, desires, and ideals?
 - c. Can the activity be related to several phases of community life?
 - d. Does it offer opportunities to observe conflicts between individuals and groups in the community?
 - e. Does it offer opportunities to observe differences between professed aims and objectives of individual and group conduct, and real aims and objectives?
3. Does the activity encourage the pupil to acquire a relatively objective and well-balanced point of view toward all communities?
 - a. Does it approach the community on an objective plane, or can prejudice be reduced to a minimum? (See 2 d, e, above.)
 - b. Can it be related to ways of living in other communities?
 - c. Can safeguards be developed against romanticizing about the community?
 - d. Can it be related to social processes at work in all communities?
4. Does the activity utilize the immediate community as an illustration of broader and basic contemporary problems and trends?
 - a. Can the activity relate a local problem to a broad national or international problem or to a problem typical of all communities?
 - b. Does the activity relate to a basic problem or trend rather than to superficial aspects of it?
 - c. Does the activity make concrete and real the trends and tensions of American life?

⁹ Julian C. Aldrich, "The Teacher Explores the Community," *Utilization of Community Resources in the Social Studies, Ninth Yearbook of the National Council for the Social Studies*, 1938, pp. 23-25.

5. Does the activity give the pupil opportunity to participate coöperatively in community movements?
 - a. Does the activity enable the pupil to participate actively in community life?
 - b. Does the activity permit the pupil to assume the responsibility of citizenship himself?
 - c. Can the activity actually affect community life?
 - d. Is the activity within the power of the pupils to complete with a minimum of adult dominance?

B. Criteria in terms of social value to the community

While a good community activity may not meet all of these criteria, the activities may be better as they are revised to meet as many as possible.

1. Does the activity relate to a basic continuing problem rather than to superficial aspects of it?
2. Does the activity lead to a desire to participate actively in community life, rather than to withdraw from it?
3. Does the activity relate to the normal and usual functioning of community life, rather than to the abnormal and unusual, or is it recognized as abnormal or unusual?
4. Can the community be brought to accept the activity as a legitimate phase of the school program?
5. Does the activity seek to learn realities about the community, rather than to search for reasons for bolstering community self-esteem?
6. Does the activity develop a recognition of the inevitability of social change?
7. Does the activity cultivate a disposition to act for the general welfare?
8. Does the activity provide for coöperation with community agencies?

C. Criteria in terms of educational value to the pupil

Community activities which have been placed in their general educational perspective, and which have social value, must also have educational value to the pupil. A good community activity may not meet all of these criteria, but activities improve as they are revised to meet as many as possible.

1. Can the activity be related to the present living experiences of boys and girls?
2. Is the activity interesting and challenging to boys and girls?
3. Can the pupils be led to understand the social significance of the activity?
4. Do the pupils participate in planning the activity?
5. Does the activity provide for differences in abilities and interests of pupils?
6. Can the activity provide for attempts to seek answers, realizing that final answers may be years or decades in the future?
7. Is the activity on a level of maturity in keeping with the abilities of the pupils?
8. Does the activity contribute to the growth and development of habits, skills, knowledges, procedures, and ideals which are normally used by boys and girls in the important activities of life?
9. Does the activity promote critical thinking?

EXERCISES

1. All students should quickly read through the two articles on contributory learning experiences within the community (one by Mitchell, the other by Chase). An individual student or small committee should then check the cur-

rent literature over a period of a year, or two and report upon any new illustrations which have appeared.

2. Experienced teachers may report upon any program of observational, participatory, or contributory activities carried on by them or within their school systems. (Isolated excursions or projects occurring at random need not be reported.)

3. Student teachers who are observing or visiting schools may report as above on the basis of observation and inquiry.

4. Experienced teachers may prepare a list of field study-trips for teachers based upon their own community and similar to the illustrations in the chapter. This exercise cannot be successfully completed on the basis of memory or "general knowledge." A small committee might well cooperate in doing some actual visiting, consulting guide books, local histories, local reference libraries, etc.

5. Student teachers may do likewise for their place of residence or for a small town or suburb nearby if they are studying in a metropolitan area.

6. Make a list of places of interest and value which might be the basis of a series of excursions for pupils. State whether the excursions are to be within the generalized core curriculum on the secondary level, within a special subject, or within the unified elementary program. (Social-studies majors may omit this since they will doubtless receive extensive discussion in their own special methods courses.)

READINGS

ALDRICH, Julian C., *A Guide to Cooperative Community Study*. A mimeographed bulletin of the St. Louis County Commission on the Teaching of the Social Studies, November, 1937.

BLACKWELL, Gordon W., *Toward Community Understanding* (Washington, D. C., American Council on Education, 1943) An exceptionally valuable reference.

Educational Method, May, 1935. This issue of the journal is devoted to articles describing interactive experiences.

Educative Elements in the Environment of the School Child of Utah, Bulletin No. 1, 1937, of the State Department of Education, Salt Lake City, Utah. Excellent collection of concrete classroom suggestions for teachers.

Elementary School Environment and the Modern Curriculum. Thirteenth Yearbook of the California Elementary School Principals Association, 1941. A good collection of practical articles from the field.

Environment and Education. Supplementary Education Monographs, No. 54, March, 1942. University of Chicago. A collection of five excellent articles on background. Somewhat advanced and may be difficult for average students.

EPLER, Stephen E., *The Teacher, The School, The Community*, Bulletin of the Commission on Teacher Education (Washington, D. C., American Council on Education, 1941). Probably the best single bibliography available. Carefully annotated. Contains also a list of organizations and agencies concerned with community problems.

EVERETT, Samuel [Editor]. *The Community School* (New York, D. Appleton-Century Company, Inc., 1938). Excellent general background with descriptions.

HANNA, Paul R., *Youth Serves the Community* (New York, D. Appleton-Century Company, Inc., 1936). One of the important books in the field.

HOCKETT, John A., and JACOBSEN, E. W., *Modern Practices in the Elementary*

- School* (Boston, Ginn and Company, 1938), Chap. 5. Good, simple treatment, elementary-school level.
- Journal of Educational Sociology*, February, 1936. The first fifty-five pages devoted to articles showing how schools serve communities.
- Junior-Senior High School Clearing House*, March, 1935. Issue given over to this problem.
- Know Your Community?* U. S. Office of Education, Pamphlet No. 57, 1941. Particularly good in that it gives a number of leading questions under each heading to direct teachers to significant items.
- LANE, Robert H., *The Teacher in the Modern Elementary School* (Boston, Houghton Mifflin Company, 1941), Chap. 2. Unusually good, elementary-school level.
- LEE, J. Murray, and LEE, Doris M., *The Child and His Curriculum* (New York, D Appleton-Century Company, Inc., 1940), pp. 255-260. Note bibliography, pp. 269-270.
- MITCHELL, MORRIS R., and others, *Youth has a Part to Play*, Pamphlet No. 6, of the Progressive Education Association Service Center, 1942. Also in February, 1942, issue of *Progressive Education*. Contains the list of 170 illustrations of major contributory learning experiences.
- SPEARS, Harold, *The Emerging High School Curriculum* (New York, American Book Company, 1940). Best illustration on secondary level. Whole volume.
- The Community As a Source of Materials of Instruction*, Bulletin of the State Department of Education (Atlanta, Ga., Revised Edition, 1938).
- Utilization of Community Resources in the Social Studies*, *Ninth Yearbook* of the National Council for the Social Studies, 18 Lawrence Hall, Cambridge, Massachusetts. Excellent materials on many aspects of problem. Good bibliographies.

Community-survey techniques are referred to infrequently above. More information may be secured by classes interested by consulting texts on *Social Research*, *Sociology*, and on *Social Surveys*.

Textbooks on the teaching of the social studies also contain much material on this topic.

The periodical literature should be consulted without fail in order to keep this chapter up to date.

Regionalism is not mentioned but is increasingly important. College students and teachers in training may read and report.

Classroom Management and Control

The importance of the total teaching-learning situation has been emphasized throughout this volume. The details of the same situation must not be overlooked. The supposedly simple details of classroom management and housekeeping may make or break a learning situation. The truly competent teacher has reduced many of these items to routine without undue mechanization. Routine details have been neglected in some quarters; discussion of them has been omitted in many texts because of a mistaken idea of freedom. Research studies in a number of areas have shown that the most imaginative and creative individuals are also the ones who have reduced the necessary routine activities to automatisms. The popular superstition that an imaginative person is also careless of detail is unfounded. The consensus of practice teachers, beginners, and even many experienced teachers is that routine factors should be discussed. The treatment is presented here with the hope of avoiding the extremes of deadening routinization and confusing lack of necessary organization.

Factors of management and discipline are treated as integral parts of the total teaching-learning situation and not as separate, discrete elements. Previous chapters have developed in very great detail the necessary background of general principle, research findings, and illustrations. This chapter will therefore summarize specific suggestions without repetition of supporting material.

SECTION I

CLASSROOM ORGANIZATION AND MANAGEMENT

The degree to which items of management should be made habitual differs. Some will be made completely automatic; others will remain highly flexible even though well organized. Learning is facilitated, disorder prevented, and time saved for more valuable items through the reasonable mechanizing of certain elements.

The policy of the school system in which the teacher works will determine many procedures for her. An outline of policy, standards, and procedures is furnished by the better systems. All suggestions are therefore subject to interpretation in the light of the local policy. Free passing of

pupils from class to class cannot be introduced by one teacher into a building where marching silently in line has been the custom for years. Routinized marching cannot be introduced by one teacher into a school which for years has developed pupil responsibility for informal passing.

The items usually subject to more or less routinization are:

1. The physical conditions within the classroom: heating, lighting, ventilation, equipment, and general appearance
2. The seating of pupils and passing from room to room
3. The storing, distribution, and collection of supplementary books, and materials
4. The distribution or collection of class papers
5. The daily program
6. The keeping of necessary reports, records, requisitions, etc.
7. Preparation for the first day of school

The physical conditions within the classroom. It is very easy for the teacher to neglect certain physical factors when she is interested in the more important teaching procedures. Furthermore, she becomes conditioned to the surroundings.

Heating. A temperature of 68 degrees is considered satisfactory, though a variation of a few degrees does not matter. Investigations show, however, that a variation of more than five degrees either way is likely to increase respiratory illness and to reduce measurably the amount and quality of work. Teachers should familiarize themselves with the type of heating system in the building, with its controls, and with supplementary devices. A thermometer should be consulted regularly. Windows, window boards, registers or radiators, and doors may all be manipulated. A few schools prohibit the opening of windows since it disarranges the system throughout the building. The principal and janitor should be consulted if any room gives special difficulty. In any event, the teacher should give constant attention to the room temperature, since its effect upon work is considerable.

Humidity. Consensus among the authorities gives 50 as the desirable level. Considerably lower humidities have little effect but a small rise brings discomfort with attendant reduction of effort and achievement. Humidity is easily measured by any of several devices but is much more difficult to control. Excess humidity can be controlled probably only through the installation of air conditioning systems in school buildings. Insufficient moisture can be supplemented through evaporation but it is difficult to secure enough. The old device of a pan of water on the radiator is now said to be inadequate; large amounts of water must be evaporated from large containers. Towels or desk blotters may be used as wicks.

Ventilation. The dullness resulting from poor ventilation was for years attributed to excess carbon dioxide in the air. Recent research suggests that excessive humidity and interference with normal processes for

reducing body temperature—evaporation of perspiration, for instance—and lack of air movement are the important factors. Air in movement is the remedy. Some experiments show that the use of window boards to give air movement without drafts upon the pupils is about as satisfactory as the more expensive circulating systems. In any event the teacher will secure more effective learning situations through careful attention to the temperature and humidity of the room.

Lighting. Earlier standards were to the effect that lighting should be unilateral and that window space be approximately one quarter of the floor space. Such standards are only vague general guides. The size of the room, particularly its width, the color of floors and walls, the type of work being carried on, and the development of modern illumination all affect the formula. The best procedure is to measure the light in various parts of the room with a meter and under varied weather conditions. The desirable amount of light to be delivered to the pupil's desk is known. The situation is partially beyond the teacher's control, but every advantage should be taken of facilities available. Much use is now made of artificial illumination. Modern devices make possible the rather accurate distribution of this light so that part of the room can be brought up to par without disturbing the rest of the room. Modern activity programs and movable furniture make unilateral lighting less necessary.

The teacher may rearrange desks, may ask for adequate electric lighting equipment, may manipulate shades and reflectors. Painting of walls a light color and the lightening of dark floors may be suggested to the proper administrative authorities. Care should be taken to see that the additional light supplied does not produce glares from page or blackboard, or elsewhere. Pupils with defective eyesight should be seated so as to secure for them the best lighting with the least strain. Left-handed pupils may be seated to avoid shadowing what they are reading or writing.

Teachers should avoid standing in front of a window or leaning upon a window sill while conducting a class period, because this forces the pupils to look squarely into the light. This is done unthinkingly by many teachers who are otherwise thoughtful of pupil comfort.

Noise. This factor is usually beyond the teacher's control, particularly if the building has been poorly placed in relation to street car lines, railroads, and other outside sources of noise. All noise within the control of the group should be minimized wherever possible. Research studies from the sound laboratories in both universities and commercial concerns show an astonishing decrease in errors and in fatigue when noise is reduced. Eventually it is hoped that sound-proof wall covering will be within the budget of school systems. The caution expressed here does not apply to the subdued hum or murmur accompanying group work but to noise in the usual sense. The use of music to accompany rhythmic activi-

ties such as learning to type and the use of certain kinds of music to accompany study are also not cases in point.

Equipment. Any and all types of standard equipment necessary in ordinary classrooms should be immediately available and in working order. Much time is wasted and disorder precipitated when apparatus is not ready in working order when needed. By the time a defective electric connection for the motion picture projector or lantern is mended, the class has lost interest in the lesson and is out of hand.

Ingenuous teachers manage to proceed with very little equipment, but no one should underestimate the assistance and increased efficiency resulting from even a minimum of equipment. Teachers should make sure that chalk, erasers, blackboards, pencil sharpeners, and waste baskets are sufficient and in order. Every teacher should learn to use a simple hektograph unless the school supplies adequate mimeograph service. Book-cases or shelves, tables for reading or construction work, tool benches and tools, electric connections, and other items are necessary. These are all useful in the elementary school and in many high-school rooms. The special equipment necessary for science, athletics, or other subjects is usually listed and analyzed in special texts on the teaching of those subjects.

Teachers and students can construct many necessary items of equipment. Money may be raised for the purchase of manufactured items. In any event the teacher should constantly add to room equipment and see that it is properly stored and kept in order. Equipment should be set up in advance of use whenever possible so that class time is not lost.

Appearance and decoration of the room. The difference in general appearance between rooms within the same building is astounding. One room may be neat and tastefully decorated; the next one, untidy and unattractive; a third, clean and neat but wholly devoid of any decorations. The general effect upon the attitude and work habits of the pupils may be very good or very bad. Older buildings with dark woodwork, fixed, badly scarred desks, and poor lighting equipment present some elements beyond the teacher's control. It is possible, however, to keep desks, shelves, and tables in neat order, paper picked up, and window shades uniformly raised. Even in older buildings teachers and pupils may brighten the room with pictures, plants or flowers, exhibits of book covers, current posters, and the like. Permission may be sought to paint the woodwork or parts of it. Window boxes and curtains may be provided in elementary rooms. The art work and construction projects of the pupils are often used for decorative purposes. These should be replaced frequently by new up-to-date exhibits.

Modern buildings are harmonious in color and tone; teachers are encouraged to suggest pictures and other decorations. Yet, in spite of this, pupils may be promoted from a room tastefully decorated with pictures appropriate to their maturity level and activities, to a room

decorated with smudged postcards, shoddy crêpe paper streamers, and pictures which have been in place for years. The writer recently visited a room in which there were pictures on the wall placed there, the principal proudly said, nearly seventy years before; no changes were permitted!

The teaching of Shakespeare's plays, of problems of American democracy, or of journalism in rooms bare of a single exhibit, poster, model, picture, or any supplementary materials is a contradiction in terms.

A certain amount of displacement of materials and of seeming untidiness is inevitable in a good working situation and is indicative of wholesome activity. This condition will not be confused with lack of system. There is no reason why books, pamphlets, and magazines should overflow tables and chairs, why pictures, posters, and student work should be jammed together on walls or bulletin board. Children soon acquire the attitudes and habits of their teachers, and will either aid in keeping a room neat and workmanlike or will become indifferent to confusion and disorder. The use of student assistants plus a minimum of planning will enable teachers to maintain rooms which are places for work and at the same time are pleasing and attractive in appearance.

The seating and passing of pupils. The mechanical aspects of seating are easily cared for. Pupils should be given seats, desks, and tables suited to their size and to the type of activity. Modern schools have adjustable seats and desks. Elementary schools increasingly use movable furniture and high schools increasingly use chairs with writing arms or movable desks with convenient book storage space. Special attention should be given to the placing of children who have difficulty with vision or hearing. Smaller children should be seated in front of the tall ones.

The psychological aspects also need consideration, since the grouping of pupils noticeably affects work habits and results. One set of children will work together; another notoriously will not. One individual may weld a group together; another will be a certain source of disorder when placed with some pupils but may be controlled when placed with another group. Flexible seating arrangements are more easily manipulated than fixed arrangements. Alphanumeric or other mechanical schemes serve no very important purpose and are harder to change. It is probably wise to let pupils seat themselves at first except for necessary mechanical features. As the term progresses, changes may be made when situations arise. During the first day or two a seating chart should be made which facilitates the learning of names, taking the roll, and calling upon pupils without confusion. Seating plans with small pockets for individual cards bearing the name of the pupil can be purchased or made. They present several advantages over the single sheet of paper used in many school systems. Changes in the seating order may be made

with no added clerical work. The individual cards may be used for the recording of grades and standard test scores, the noting of book numbers, and many other clerical items in the daily business of the classroom. The cards may be marked so that a substitute replacing the absent teacher will know at a glance the names of student assistants and the jobs assigned to them.

The general movement of traffic in the halls is usually regulated by school policy. Traffic control methods have been worked out in most buildings. Within the room the individual teacher may work out with the pupils regulations for passing into and out of the room, for using various pieces of equipment, for moving furniture and apparatus, and for separating into groups. This procedure should be definite and well understood with a minimum of signalling and bell ringing. Teachers should train themselves scrupulously to gage their teaching so that a natural break coincides with the signal for the end of the period. In this way the teacher will not have to shout her parting words to a retreating class. The teacher who "teaches down to the ringing of the bell" without giving the class time to put away equipment is not zealously professional. What she does is not commendable; she is inconsiderate of the pupils who are forced to hurry to their next class and inconsiderate of the next teacher who must wait for the tardy ones to arrive. This adaptation to an arbitrary time limit is an unfortunate but necessary adjustment to administrative factors. The elementary school with its unified program does not present this difficulty.

The storing, distribution, and collection of supplementary books and materials. Books, materials, and tools should be kept in orderly supply closets and lockers. Materials necessary for a given work period or recitation should be ready for use before class time. Securing and distributing song books often takes more time than is given to singing. This waste of time in handling equipment is true of band practice, reading, art, and construction activities. There is no known excuse for using class time for finding, arranging, and distributing instructional materials. Teachers often fail at a crucial moment in a lesson because no chalk is available for a quick summary or diagram. Competent teachers distribute materials for use in a manner that in some cases approaches the magical. The assistance of students should be utilized freely.

A related error here is the dictating in class of long assignments, summaries, or references. This is a stupid waste of time which may be avoided through use of the school mimeograph or one's own hektograph. All uniform material should be prepared in advance and distributed without loss of class time.

The guiding principle is to avoid waste of time on accessory processes. Teachers alert to the problem can work out any number of time-saving devices and routines; and many have done so.

The distribution and collection of class papers. The problem is similar to the preceding one. Much time is wasted in many classrooms by passing out papers one at a time to pupils distributed over the room, or by collecting work in the same manner.

Papers may be laid in alphabetic piles on a desk near the door. They may be sorted by the teacher by rows and in pupil order within the row and passed rapidly back. A few high schools have pigeonholes or paper racks in the hall for the return of papers. In isolated cases this detail is cared for through the home room.

The daily program. The high-school teacher will usually find that his daily program is arranged as a part of the total program of the building. Principles are presented in courses on high-school administration. The elementary teacher has considerable freedom in organizing the program within her room.¹

Early research studies indicated that the placement of subjects in the program could be related to fatigue curves. A warm-up period and an easy subject came first, followed by a "hard" one, then by recess or other relaxation. Construction work was placed in late afternoon. This, however, was based upon the subject curriculum, upon overgeneralizing the research data. The emergence of modern teaching methods and the greater knowledge of the nature of childhood have changed all this. The great variety of learning activities within the working period of a unit necessitates a new conception of the relation of fatigue to the classroom, of change of pace, of time allotment and placement. The development of units prohibits fixed daily time allotments of subjects. Modern emphasis is upon pupil growth in certain understandings and traits, not upon subject coverage. Where subject organization must be retained teachers are increasingly aiming at weekly time allotments to be adjusted as necessity indicates, increasingly grouping related subject matters to secure more lifelike learning situations. Even within the unit plan there must be a balancing of activities to ensure rounded development. Flexibility is the important factor in both old and new school. It can be secured without going to the extreme of no program at all.

Modern principles of program-making in the elementary school include:

1. Provisions for some time-blocks of one, two, or even more hours. This cares for the developmental working period of the unit and also for the development of those social skills and attitudes which come from group work.
2. Provision within or outside the working period for certain individual

¹ Excellent sample programs with detailed discussion will be found in:

Charles M. Reineohl and Fred C. Ayer, *Classroom Administration and Pupil Adjustment* (New York, D. Appleton-Century Co., 1940).

John A. Hockett and E. W. Jacobsen, *Modern Practices in the Elementary Schools* (Boston, Ginn and Co., 1938).

F. S. Breed, *Classroom Organization and Management* (Yonkers-on-Hudson, N. Y., World Book Co., 1933).

activities of research, pursuit of individual problems or interests, of organization of data, etc.

3. Provision of adequate practice periods for the so-called fundamental skills of reading, writing, computation, spelling, and the use of oral and written language.

4. Provision for both enjoyment and development of skill in the arts, music, drawing, modeling, constructing, dancing, dramatizing, etc.

5. Provision for creative expression of all types, depending upon individual interest. This may be within the unit, or later in separate periods.

6. Provision for the necessary daily routines demanded by school administration, pupil accounting, reporting, health examinations, etc.

7. Provision for necessary play, recreation, relaxation, rest periods.

Common practice in many modern elementary schools is to use all or nearly all the morning for the working period of the unit with its many diverse activities. Morning programs cannot be alike from day to day since a planning conference may open one day, an evaluational activity another, individual reports another. Different groups within the class will be carrying on different activities at different times. All programs will be orderly in that the working plan for the unit is the controlling factor. Afternoons may be divided among practice periods for basic skills, expressive activities, or even for an extension of the working period. Skill periods grow out of and are made meaningful by the unit. A few schools claim to develop skills without giving them special attention, but the accuracy of this assertion has not been demonstrated.

The keeping of records and reports. School-keeping necessitates just so much "paper work." Rolls must be kept, absence and tardiness reported, health reports made. Pupils must be admitted, transferred, given permission to work in library or shop. Many modern high schools with huge student bodies must maintain complicated systems of pupil accounting with many reports to be filed. Teachers who complain of this do not understand the difficulty of administering a large school. In addition there are requisitions to be made, receipts signed, materials and apparatus to be checked in and out. This necessary but uninteresting work can so monopolize a teacher's time and effort that teaching and learning actually suffer major losses. A few formal-minded, unimaginative individuals so love this routine that the paper work clearly dominates their lives. Maintaining the routine in explicit and painful detail becomes far more important than the learning situation the routine is to serve. A few carefree individuals ignore records and routine items to the extent of interfering with the orderly management of the entire school. The competent teacher will devise means to caring for this aspect of her work, on time and with a minimum of effort.

Formal calling of the roll is a relic of antiquity which always strikes a well-trained teacher with renewed absurdity when it is observed. A quick glance at an accurately kept seating chart is all that is necessary

in the opening weeks of school. After this "getting-acquainted" period is over, the personalities of the students in her classes should be so well known to the teacher that she does not need a seating plan to tell her that a pupil is absent. The necessary period report blanks called for by office monitors should be checked and ready so that class work is not interrupted when they are called for. School registers, where required, should be filled in daily, as should all other recurring reports, so that time may be saved and confusion avoided. Cooperation with all colleagues and school officers is necessary. The competent teacher will arrange time and devices, use student help, and otherwise see to it that caring for records and reports is routinized. A little time taken at the beginning of the school year to organize the teacher's desk will pay dividends as the year progresses. A home-made filing system constructed of cardboard guides with legible gummed labels will serve to keep the right-hand top drawer usable office forms, reports, blanks, book receipts can be kept clean and immediately available. Notes for absence and tardiness, program cards, vaccination certificates, warning notices, etc., can be kept in orderly fashion and referred to at a moment's notice in an alphabetically arranged student file (also kept in the right-hand top drawer) made of inexpensive manila envelopes, letter-size, one for each pupil, with his name typed in the "stamp" corner. Large schools will usually supply the teacher with a manual and a set of blanks covering local policy and procedure.

Preparation for the first day of school. The first day may set the tone for the year both for the institution and for the individual teacher. The waste of time and simple stupidity of administration in many schools is unbelievable unless witnessed. The impression upon the children can be seriously detrimental. Tedious unnecessary details of registration take hours, even days. Some schools take one week to get started. Supplies are distributed upon individual request necessitating much waste motion. Pupils stand around or add to the confusion by aimless movement. Persons are not on hand when needed. The abuse has grown so bad in a few places that school boards date contracts ahead of the opening of school and require the teacher's presence in advance. Teachers' meetings are held several days in advance of the opening. The same procedures appear in many schools, not as compelled by the board but as aspects of intelligent administration by the superintendent and principal. Many schools in contrast, make the first day friendly, cheerful, thoroughly well organized, and a businesslike introduction to the year's work. Registration has been cared for the previous semester except for newcomers who are quickly assigned to classes by an efficient staff designated for just that purpose. Supplies have been in place for several days, traffic control is in the hands of experienced students, machinery is ready for any emergencies, odd registrations, or interruptions. Classes start at once and by the end of the first day the school is in full swing.

There is no known reason why the first day should not be a regular school day in most schools.

A class of inexperienced students working with the writer set up as a minor unit growing out of their own thinking, "What Preparation Should I Make for the Opening Day of School." Reading, discussion, and contemplation resulted in a list of seventy-nine specific questions relating to major or minor aspects of the first day. A committee classified these under seven headings:

1. What must I know about the community and how shall I get the information?
2. What should I know about the school building itself and how shall I get the information?
3. What should I know about the school regulations, routines, records, and blanks, etc.?
4. How may I ensure a sufficient supply of materials, books, apparatus, etc., for the first day?
5. How may I secure some preliminary information about my prospective students?
6. What preparation shall I make for the actual first contact in the recitation room?
7. How may I create a good impression on the pupils?

The group, individually and by committees, read texts and current articles, consulted experienced teachers, gathered bulletins issued by school systems on the orientation of new teachers, and interviewed a number of superintendents and principals. A composite class report resulted, the bulk of which is reproduced below. Space is given to this, since students are much interested in these crucial first contacts and because the report emphasizes again a number of important routine points. The wording is that of the students.

Class Report on Preparation for First Day of School

I. Getting acquainted with the community

Prospective teachers should arrive in the city where they are to teach several days before the opening of school, whether the contract demands this or not. They should take their time in finding a place to live. Except in the smaller cities, it is possible to secure a rooming place and to eat elsewhere. This is probably desirable.

One should walk about, particularly in the school neighborhood, noting the type of homes, the dress of the people, the manners of the children, the appearance of the older members of the community, the care given to streets, alleys, parkways and yards. Much can be inferred from these observations regarding the social and economic class from which the pupils will come.

These first impressions may be supplemented by direct inquiry to the principal, former teachers, or acquaintances made during the first week.

Note. The class had previously made a community survey of the type indicated in Chapter 21 for major curricular purposes. The summary here was of simple immediate items.

II. Getting acquainted with the school building; one's own classroom, etc.

It is well to visit the building before school opens, familiarizing oneself with

the entrances, exits, hallways, supply rooms, study halls, the heating and ventilating devices, etc. This will save confusion on the first day.

III. Securing information about school policies, regulations, routine, etc.

One may expect in progressive school systems that there will be faculty meeting on the Saturday prior to the opening of school. If this is not the case, the new teacher should seek out the principal and ask such questions as are necessary to get the information required. It is well for a teacher in cases like this to have prepared a list of definite questions which will save the time of both herself and the principal.

IV. Insuring a sufficient supply of materials, books, apparatus, etc

It is absolutely essential that the room be supplied with chalk and erasers, paper, pencils, textbooks if possible, etc. Ordinarily the common classroom supplies will be placed by the janitor. The teacher should see, however, that they are there and ready. This enables one to conduct a somewhat organized class period at once and aids greatly in preventing confusion.

V. Securing preliminary information about prospective pupils

This may be done by inspecting the registers or cumulative records in the office. It may also be done by speaking to older teachers. Information of this nature may be very valuable but one must guard against prejudice formed by the reports of previous teachers.

VI. Preparing for the actual first contacts in the recitation room

It is essential that the teacher have thought out in minute detail the possibilities of the first class hours. Things should not be left to chance, but a definite procedure should be outlined and ready. If this has to be changed it will be much less confusing than having to construct a procedure on the spur of the moment.

The teacher should know exactly how she will receive and greet the incoming classes, have decided in her own mind how to seat them, how to get a class roll, what remarks and announcements to make.

Depending upon the subject matter to be taught and the amount of time allowed in first day periods, she should have planned an actual class exercise. This may be in the nature of an informal discussion of previous work, it may be a provocative discussion stimulated by the teacher; it may be written or oral.

As a rule it is probably not wise to outline the course in traditional manner. It is probably not wise to make a general talk on "what I am going to expect from the class." Strive to make a pleasing and interesting introduction and let the other matters come up later.

A point of view concerning the probable types of first-day misbehavior should be formulated. This will be probably one of the most difficult problems.

VII. How to create a good impression on the pupils

A good impression will be materially aided by the self-confidence and assurance which the teacher manifests the first few minutes. This in turn will be aided by the definite preparation made by the teacher as indicated above. The teacher should know what he is going to do and do it. A quiet assurance is a marked asset.

The teacher must strive for self-control and poise and know how to maintain it in the face of rather trying difficulties.

Above all, one should remember not to make any decision too quickly, particularly in relation to any disturbance.

Manifesting a genuine enthusiasm is likely to beget the same type of response from the class.

The teacher should show by his attitude, remarks, and facial expression, and replies to questions that he is friendly and approachable. Let the students feel that they may ask questions and get information.

A sense of humor is important. One should probably not tell jokes the first day or so, which would result in boisterous laughter thus loosening control over the class. One should, however, manifest an appreciation of any odd incident which happens and not attempt to "high hat" such a situation. The telling of interesting and humorous anecdotes for illustrations may constitute a perfectly natural and normal introduction to the work and is permissible.

It is probably well to maintain something of reserve, however pleasant, at the same time answering the students' questions kindly and sympathetically.

Because one's general appearance will be noted by the class, care should be taken that this is neat and attractive.

The instructor will, by his attitude, create the general impression that everyone is there for business. He will not threaten or lecture or lay down the law, for threats are challenges to pupils.

Many things may happen the first day which will interrupt the best-laid plans. Some items are beyond the control of the individual teacher. Barring accidents and granted reasonably well-trained administrators, the first day of school should be an orderly and interesting day of regular work.

EXERCISES AND REPORTS

1. On the basis of a series of observations, report with evaluational comment of your own.

- a. Methods used to care for light, heat, ventilation with a minimum of interruption. Report also situations in which the available mechanisms were poorly used or ignored.
- b. The traffic controls, or lack of them, within the building; the teacher's management within her room.
- c. The devices used to make available books, instruments, apparatus, tools, or other materials. Report in detail any wasteful procedures observed and suggest corrections.
- d. The methods used to distribute and collect class papers and construction materials.
- e. Time wasted on any accessory and incidental elements which should have been routinized.

2. Report in some detail on attractive room decorations or the opposite as observed. Make suggestions for rooms without decorations or exhibits of any sort, in terms of the subject or activity housed.

3. Interview a number of elementary teachers about the construction and operation of their daily programs. Report any ingenious arrangements.

4. Examine an exhibit (in library or in instructor's possession) of the blanks necessary for the administration of a large high school. Make comparisons between systems.

5. Write out fifteen or twenty questions concerning problems which you believe will confront you in preparing for the first day of school. Class discussion may be based on these.

6. How can you justify the necessity for routinization in the light of the general theory of democratic choice and freedom advocated for the schools?

READINGS

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SECTION 2

DISCIPLINE AS SELF-CONTROL FOR INDIVIDUAL AND GROUP 2

The teacher-in-training probably worries more over questions of discipline than over any other aspect of her prospective teaching. Experienced teachers, with some notable exceptions in all schools, probably know less about the principles of desirable discipline than they know about any other problem. Parents as a rule possess a remarkable collection of old wives' tales concerning the proper methods of disciplining children. Parents and teachers do not improve their methods of disciplining with experience as easily as they improve many other skills. Methods used by experienced teachers, headmasters, and principals are not significantly different as a rule from those used by untrained beginners. The techniques most commonly used to curb disorder, to restrain certain personalities, to bring children into accord with conventional behavior actually aggravate and encourage the very maladjustments they are to cure.

The picture is not so dark as the foregoing statements indicate. The long, slow, patient research work of child psychologists and of psychiatrists, together with the clinical findings of students of juvenile delinquency are having their effect. Certain teachers and principals in given schools are famous locally for their ability to manage children. Whole schools have made studies of the intricacies of behavior control and are far on the way to developing the most desuabable type of demo-

* Much of the basic theory and scientific research which is applicable to the problem of discipline has already been developed throughout this volume, particularly in Part I. The treatment here is, therefore, sharply abbreviated. The summary statements are not intended to be dogmatic. Instructors and students who wish more of the detailed background and who will be aided by specific illustrations will find ample reference material available. Sources will be noted at appropriate places in this section.

cratic order through self-discipline. The maintenance of order is by no means a simple thing. It cannot be learned by uncontrolled and unanalyzed "experience," since many of the fundamental factors cannot be observed or understood without knowledge of the clinical findings mentioned above.

Definitions of discipline differ materially. Parents and conservative teachers are often very aggressive in their insistence on "discipline," "order," "obedience," "respect for authority." School boards and superintendents demand teachers who can discipline the children. They assert with vigor that they believe firmly in discipline and order. Well, of course! Who is there who does not believe in discipline and order? Modern or "progressive" educators are sometimes accused of neglecting discipline, even of openly encouraging lack of respect for authority. The criticism is nonsensical and based upon the observation of or hearsay about chaos and uproar in certain school-rooms where insufficiently trained teachers were attempting to use the difficult processes of modern teaching. The fact that many traditional classrooms present exactly similar scenes of noisy anarchy is conveniently forgotten. The traditional school, in fact, despite its rigid rules and harsh punishments, has presented in the past scenes of physical violence to persons and destruction of property, scenes which very probably cannot be duplicated in the modern school. A second reason for the criticism of modern schools stems from fundamentally different conceptions of discipline and order. Many conservative teachers and parents are shocked when they find children speaking freely to each other, conferring in groups, walking about the room, and engaging in different activities. Such situations, regarded by some as disorderly and lacking in discipline, may in fact represent the very highest and most desirable type of orderly organization and discipline. The sepulchral calm of many traditional classrooms may not represent order and discipline at all but be in truth a situation seething with revolt, productive of seriously detrimental attitudes of antagonism and contempt toward authority. Extremes are admittedly being contrasted here. The great majority of ordinary classroom situations fall between these antithetical extremes.

Real problem is in determining aim and method of discipline. All sane persons, conservatives and progressives alike, believe in order and discipline. Order and discipline are characteristics of all sensible social situations; they are necessary in order to get anything done. The argument is not whether or not to have discipline. The real clash comes over what is meant by discipline, and over methods of securing order.

Most parents and conservative teachers mean by order a situation free from annoyance to themselves. They place great faith in rules and regulations, in punishments, in demanding respect for authority. They believe that children must be taught to obey authority without question. They will have order or know the reason why. Children must do

as they are told. Coercion is regarded as legitimate to secure obedience, respect, order, discipline. Children must conform—or else. The general attitude is summed up in the old saying, "Spare the rod and spoil the child." Persons holding these beliefs fall into two groups. First, there are those who are completely honest and sincere but who are wholly unaware of the facts. Second, there are those who are intellectually or emotionally unstable and insecure. These individuals insist on obedience, arbitrarily demand respect, are constantly demanding apologies from other persons, are unhappy unless dominating other persons, ordering them about, and otherwise manifesting superiority. These persons range from the mildly unstable to the seriously neurotic. Many in the first group can be won over through competent, sympathetic supervision and education. The second group needs the most gentle and sympathetic introduction to the nature of personality disorders followed by sympathetic guidance in personality improvement.

An increasing proportion of parents and most modern teachers are concerned with developing the much more valid and reliable controls of self-discipline. They know that children are developing organisms, hence will manifest behavior tendencies which from time to time are inconsistent. They also know that many things done by children which are annoying to adults are perfectly normal and to be expected from children. Certainly little children must be trained and occasionally punished, but the aim is not perpetual control by rule and regulation, by fear, and by punishment. As explained in Chapter 3, even imposed control must be used with an eye to the effect. The individual so controlled must eventually be able to agree with the imposition. The aim is to produce a poised, self-reliant personality able to live in a democratic group. This is not only in accord with all modern research in child study, psychology, psychiatry, and juvenile delinquency; it is necessary if we are ever to realize democracy. The home and the school should foster the development of the individual through giving ever-increasing responsibility in keeping with developing levels of social maturity.

Public interest high, information low. Aims and methods of discipline are still matters of public controversy particularly with regard to home and school training. Articles constantly appear in the daily press, as well as in serious and humorous magazines. An interesting sample of public discussion is contained in the symposium carried in the *Atlantic Monthly* for June, August, and September, 1943, under the title, "Children Out of Hand." A number of teachers related their own personal experiences with unruly children and advocated frequent and thorough thrashings as the cure. One school "counselor" indicated that "knocking boys down might help." These individuals are not merely ignorant of huge areas of modern research, they seem to be unaware that their own accounts of school experiences, their diagnosis and prescriptions show them to be suffering from some of the very personality

frustrations, from aggressions due to suppression or frustration similar to those from which the unfortunate children are suffering. No suggestion of diagnosis is given, no discrimination between types of children, between types of misbehavior, is made. Thrash them all and do it thoroughly is the safe and sure answer. In striking contrast are the articles there and elsewhere by physicians, trained social workers, psychiatrists, and psychologists. Careful, cautious analysis is substituted for angry temperamental reaction. The facts and principles derived from long, careful research are substituted for the opinions derived from fragmentary, insufficient, and incorrectly analyzed personal experience. The popular literature on discipline is extensive but sadly uninformed.

Conflicting aims and methods natural result of historical development.

Conceptions of order, discipline, and of punishment or other means of securing order have changed through the centuries as have all other social institutions and conceptions.⁸ The confusion in parental and educational thinking is a quite normal result and is duplicated in public thinking on practically all social, economic, political, or religious problems which involve control. Religious theory and changes within it have been particularly associated with theories of discipline and punishment; likewise with changing conceptions of the state, of government, and of their place in the regulation of human affairs. Teachers increasingly realize that discipline is not a simple classroom affair but is, in the long run, bound up with the dominant social and religious theories of the day.

The first conception under which unconventional behavior was treated was purely *vindictive*. Actually there was little or no thought of reforming the individual or of aiding him toward more socially acceptable behavior. Vengeance was the goal. The religious and social theories of the most primitive people made this disciplinary theory inevitable. Animism attributed motives to inanimate objects which should be, and were, punished for injury to persons. Such gods as there were, were capricious, despotic, and vengeful. If the deities could exact vengeance why not the faithful followers and believers? The vindictive attitude persists in human thought. The meaningless repetition of many religious verbalisms which long ago lost their original sense aids in this unfortunate survival. More important, the general public is not even slightly educated within the areas discovered by modern research into the nature of human personality, human motive, the effects of punishments and satisfactions, the curious perversions of personality set up by persons under pressure. The teacher who takes pupil mischief and disturbance personally, who gives way to strong emotion, who inflicts severe punishments, who punishes indiscriminately, who adopts the "I'll-show-them-who's-boss" attitude is acting on this simple, barbaric level. There is

⁸ Pickens Harris, *Changing Conceptions of School Discipline* (New York, The Macmillan Co., 1928).

no social or educative factor here. The individual is not to be educated or saved. He is to be made to suffer.

The next conception was that of *retributive* punishment and discipline. If one does evil, then let him suffer the consequences. This is a step beyond vengeance.

A basis for this conception could be found in natural law, though it doubtless emerged long before natural laws were well understood. The origin is likely found in the emergence of better ethical and religious conceptions, primitive as they still were. Capricious deities gave way to gods or a God who would give us rules by which to live. The codes of Hammurabi and of Moses, the latter attributed directly to God, embody this conception and have had tremendous influence in shaping human thinking. The theory is inadequate in the light of modern knowledge about human conduct, its motives, its manifestations, and its perversions. Further, it very easily becomes focused on the retribution and not on the purposes of retribution. However, the theory that natural punishments should follow misbehavior is sound. Adults will protect the immature from the dangerous or fatal results but will use every ordinary care to the end that children increasingly see that discomfort and unhappiness to themselves follow from certain acts. The emphasis is not to be upon the retribution but on the development of understandings and attitudes making for desirable conduct. Untold numbers of children reared by competent parents and teachers have learned through many simple, painful, but non-dangerous situations that it is sensible to anticipate consequences and to attempt forecast of results in given situations.

The *deterrent* theory is self-explanatory. Fear is the basis even more clearly and openly than in the earlier theories. The religious doctrines and methods are too well known to need repetition. Social and political instruments of this theory are the public whippings in the village square, the stocks, public hangings or executions of other sorts. Many other forms of humiliation were used by church and state. The school using this theory makes children "stand in the corner," puts dunce caps on them, holds them up to ridicule. Many of the techniques of vengeance appear here but now for their deterrent effect.

Educators are not quite, but almost, unanimous in condemning fear as a motive. They believe rather that a far more ethical and desirable citizen will result if individuals are taught to do the right thing not because they *must*, not even because they *ought*, but because they *recognize that they ought*. The use of fear in the control of little children is one of the ugly chapters in the history of education.

The *remedial* theory is comparatively recent in origin and is based upon our very greatly increased knowledge resulting from wide research into the nature of personality and its controls. Research into the nature of society and into the results of reciprocal interaction between individuals and the social and physical environment has also supplied vital

data. The weakening of the religious conception that persons are inherently evil because of original sin aids the developing social concept. The scientific facts concerning heredity have rendered untenable certain earlier conceptions of causation and guilt. Blame for misbehavior cannot always be placed wholly upon the individual. Sometimes even, the individual is less to blame than certain other persons and factors in his environment. Individuals are not excused from responsibility but misbehavior is now regarded as an outgrowth of the total life history of an individual. Diagnosis and cure are the desired processes. The aim is to save or remake the individual: to restore him to socially acceptable status. Punishment and reform-school methods are giving way slowly to careful scientific diagnosis followed by sympathetic reeducation. Some individuals are not receptive to this treatment, but this is no reason to revert to more primitive methods for all. The place of punishment and of definite methods of imposed control for certain cases will be discussed in later paragraphs.

The *preventive* theory is the natural outgrowth of the social thinking and research of the modern era. Its aim is to prevent the situations arising at all which now call for remedial measures. An enormous amount of anti-social behavior would never arise if we could remove its causes and provide desirable conditions within which children could grow up. The religious concept of inherent evil resulting from original sin is being replaced by the concept that man is neither good nor bad by nature and that he can aspire to and achieve the highest moral and ethical values. Modern research and enlightened thinking in religion are here in accord. *The school which accepts this theory believes that discipline and order are natural accompaniments of a desirable learning situation.* A modern curriculum adapted to individual differences, well-trained teachers, adequate materials, and desirable physical facilities are regarded as the prime essentials in securing the valid type of discipline and order. The aim of the school is to achieve, through its well-integrated system of education, an individual possessed of a social conscience, who sees the good sense in acceptable behavior. A democratic society is not possible otherwise. It is significant that two recent books entitle their chapters on discipline, "Making Discipline Educative"⁴ and "Discipline As an Aspect of School Morale and Character Building."⁵

A group of prospective teachers think the problem through. The problem of discipline is always raised early in courses for teachers. Students in one of the writer's courses in principles of teaching set up as one of the early units, "How may I exercise disciplinary control over my pupils?" The wording was accepted by the instructor without comment. During the planning period, the group decided that one committee

⁴ John A. Hockett and E. W. Jacobsen, *op. cit.*

⁵ Raleigh Schorling, *op. cit.*

would bring in as many specific illustrations of classroom disturbance as they could gather from their own thinking, from preliminary reading, and from interviewing many teachers. The specifics were to be grouped under major categories or types of misbehavior. Another committee was to compile a number of principles of discipline of which they knew or which they could secure from experienced teachers and principals.

Vigorous class discussions showed that several different types of classifications were possible. Class question: Could we construct one system which would be better than the others? Meanwhile, the discussion naturally included application of principle and possible solutions for various specific incidents. Within a short time, two or three students volunteered the suggestion that a fundamental difference in cases could be seen which would enable us to divide all items between two major categories: (1) serious breaches of discipline calling for rather serious corrective measures, and (2) innocent, incidental matters easily and quickly corrected. This immediately drew from the class the suggestion that careful diagnosis to determine causes and responsibilities was necessary, especially in the serious cases.

The class manifested increasing reluctance to use the terms "disciplinary control," "discipline," "correction," and after a time substitute another statement for the original question.

How may I exercise due authority over my pupils?

- a. By setting a good example, by providing proper conditions for right actions, by honest explanations, and through simple correction
- b. By punitive and corrective means

As this was being written on the board, one student made the suggestion out of a clear sky that the whole discussion so far was wrong end to! He said the whole purpose is not to discipline or to exercise control; the reference should not be to the teacher. The purpose is to train the pupil to behave properly on his own initiative! This precipitated a vigorous argument, the conservative students being particularly articulate. A majority eventually agreed to the following statement:

Training students in right habits of action, good conduct, etc.

- a. As above
- b. As above

The class remained divided upon the validity of this later conception, though nearly all were convinced as the course developed. Attention was now given for some days to constructing classified lists of typical incidents calling for teacher action and lists of acceptable principles to govern action. The classifications and lists given below are based partly on the class efforts and partly upon other sources.

Typical classes of misbehavior with illustrations. The following list is by no means exhaustive. The classifications are not mutually exclusive. The categories are deliberately worded so as to prepare for the

emphasis upon diagnosis and certain other principles which are to come. The listing also brings the problem down to earth instead of leaving it on the level of generalities and vague principles.^a

1. *Incidents due to surplus energy.* These are natural to childhood and can best be cured by substituting more worth-while activities resulting from a good curriculum and teaching method. Simple explanations are also effective. Properly handled these are easily eliminated.
 - a. Whispering
 - b. Throwing "spit balls," paper wads, darts
 - c. Throwing chalk or erasers
 - d. Writing notes
 - e. Cutting initials on desk
 - f. Chewing gum
 - g. Making faces, "acting up"
 - h. Humming in an undertone
 - i. Scribbling on blackboard
 - j. Teasing others
 - k. Drawing funny pictures
 - l. Minor horseplay during passing of classes
 - m. Accidentally dropping things, knocking books off desks
 - n. Pinning labels on backs of companions (sometimes under g)
2. *Incidents due to physical discomfort.* Usually these cannot be helped by the children. Punishing them for things beyond their control is not merely stupid; it breeds antagonism and distrust.
 - a. Restlessness due to poor ventilation; wriggling, fidgeting
 - b. Excessive yawning, sleepiness due to poor ventilation or excessive temperature
 - c. General inattention
 - d. Giggling can often be traced to physical discomfort
 - e. Eating due to hunger; excessive water drinking due to dryness of the air
 - f. Coughing; may start in minor way and through mass imitation become a major disturbance with no thought on pupils' part; may stem from any of several physical causes
 - g. Noise outside room distracts attention, causes movement, etc.
 - h. Carelessness with own waste paper, pencil sharpenings, lunch refuse if room is generally untidy.
3. *Incidents due to poor curriculum and methods, poor classroom management*
 - a. General inattention plus any and all of the items under 1 and 2 may appear due to this cause
 - b. Inattention, noise, and movement because of frequent interruption of regular work; pupil becomes unconsciously convinced that attention doesn't matter
 - c. Minor disorders caused by poor arrangements of boards, cloakrooms, supply closets, etc.
 - d. Disorders caused by or starting during distribution of supplies
 - e. Turning in late papers, carelessly prepared papers
 - f. Failure to have material ready on time

^a Margaret L. Hayes, *A Study of the Classroom Disturbances of Eighth Grade Boys and Girls* (New York, Teachers College, Bureau of Publications, 1943). An interesting and extensive study of the first class of misbehavior. Chapter 7, good reading for students.

- g. Frequent absences without any good reason
 - h. Frequent tardiness without good reason
 - i. Loitering in halls and washrooms
4. *Incidents due to simple, uncomplicated desire to be noticed, to attract attention.* Part of this, particularly at certain ages, is a natural accompaniment of a developing personality, and of increasing self-consciousness. Small boys (grown ones as well) do it to attract the opposite sex. Great care must be exercised, however, to distinguish between this type and that which is due to serious and usually hidden personality disturbances and frustrations. Certain symptomatic behaviors which are similar may indicate either type. Diagnosis and case history are called for.
- a. Making unnecessary trips to teacher's desk, waste basket, etc.
 - b. Drawing caricatures of teacher, or of less prominent children
 - c. Playing practical jokes on the teacher (mouse in the desk, alarm clocks in study period, limburger cheese in teacher's desk, etc.)
 - d. Officiously bearing tales to teacher
 - e. Making impertinent remarks for benefit of classmates; sometimes these are carefully just out of earshot, sometimes openly made
 - f. Telling highly imaginative stories as true. (In little children this is a natural result until distinction has been built up between the real and the imagined)
 - g. Showing off in various ways
 - h. Bragging
 - i. Trying to make a fool of the teacher
 - j. Scaring girls with mice, toads, snakes, etc.
 - k. Passing out candy or food under cover of desks or books
 - l. Impudent recitations
5. *Incidents which may be due to subtle and hidden causes* Causes here are usually only to be found through an examination of the pupil's life history. Personality disturbances, particularly frustrations, bring all manner of peculiar manifestations. The assistance of school psychologists and psychiatrists is necessary. These are the cases with which the "practical" teacher does the serious damage with her uncritical diagnosis and harsh punishments. Parents and teachers often attribute these to bad heredity, perverted ideals, bad morals. These are verbalisms and the last named one actually begs the question.
- a. Aggressive and domineering behavior constantly indulged in seemingly without reason, and unresponsive to punishment
 - (1) Physical bullying and inflicting of pain
 - (2) Argumentative insistence upon own opinions
 - (3) Insistence upon position of leadership in the face of demonstrated incompetence
 - b. Lying; fighting
 - c. Cheating; gambling, "shooting craps"
 - d. Stealing
 - e. Stubborn refusal to obey rules, deliberate and serious impertinence or impudence; inciting others to revolt
 - f. Absolute indifference to school assignments, study requirements, etc.
 - g. Destruction of school property maliciously
 - h. Playing tricks on teacher or classmates which may have painful and genuinely dangerous results
 - i. Drinking and smoking

- j. Profane language used ostentatiously; "hard boiled" attitude
- k. Formation of cliques
- l. Indecent acts; use of sex symbols and language which is taboo
- m. Playing hookey
- n. Undue retirement from activity, shyness and timidity, crying, and even hysteria

Diagnosis the important factor. Casual inspection of the foregoing listing shows clearly that the cause and cure of school disorders are not simple problems. Misbehavior must be carefully defined and classified. Given incidents appear in very different lights when classified according to overt manifestation, or according to cause, or according to adult reaction. Incidents must be carefully diagnosed before decision and action. The similarity between diagnosing causes of failure to learn and failure to behave in socially acceptable manner is clear. The two are often intimately related in causation. Practically everything in Chapter 18, particularly in Section II, is applicable and will not be repeated here.

Personality disturbances difficult to diagnose. It is clear that many common and recurrent classroom disturbances are simple and easily handled. The cases owing to hidden personality difficulties are complex and subtle. Teachers in the past have had no training whatever in recognizing and dealing with these cases. The current emphasis upon mental hygiene and upon simple preliminary understandings derived from psychiatry is highly significant for teacher training.

A study in this field which has become famous and which should be known to every teacher is the astonishing and illuminating analysis made by Wickman.⁷ He undertook to discover the types of behavior which were regarded by teachers as evidences of present social or emotional maladjustment, the types of behavior which were regarded by teachers as possibly foreshadowing more serious maladjustments later in life. The teacher judgments were then compared with the facts as obtained by competent psychiatrists and mental hygienists in the actual study and care of maladjustment. The most astounding differences in insight and judgment appear.

Teachers consider

More
Serious
Than

More
Serious
Than

More
Serious
Than

Immoralities
Dishonesties
Transgressions
against
authority

Violations of:
Orderliness
in classroom
Application to
school work

Extravagant,
aggressive
personality
and behavior
traits

Withdrawing,
recessive
personality
and behavior
traits

⁷ E. K. Wickman, *Children's Behavior and Teachers' Attitudes* (New York, The Commonwealth Fund, 1928)

Mental hygienists consider

	More Serious Than	More Serious Than	More Serious Than
Withdrawing, recessive personality and behavior traits	Dishonesties Cruelty Temper tantrums Truancy	Immoralities Violations of school work requirements Extravagant behavior traits	Transgressions against authority Violations of orderliness in class

The teachers' judgments of the importance of certain pupil activities are almost directly reversed by judgments made by competent specialists in behavior problems. Teachers stress items which disturb the peace of the room but which are actually of little or no importance as symptoms of personality difficulty. Disorderly lines in passing, whispering, standing on wrong side of desk to recite, failing to put pencil down immediately, are noted as serious by many teachers. Furthermore, differences in judgment are very great, some teachers reporting that disorderliness in the room appears in 100 per cent of their pupils, while others report it for less than 15 per cent. One teacher reports that over 90 per cent of her pupils are habitually dishonest, while another observes no evidences whatever of untruthfulness in her pupils. In given cases, these differences might actually be true to the facts, but over a period of time and with many classes, they could not be accurate.

Many, if not most, of the items regarded by teachers as evidence of maladjustment are the natural and inevitable reactions of healthy, active children under the artificial restraints of the traditional type of classroom situation. On the other hand, many teachers completely fail to recognize the importance of certain serious evidences of maladjustment which are covered up under recessive, timid, or bashful conduct. These latter do not disturb the peace and so do not come to the attention of the teacher.

All this is of tremendous importance when we consider that many classroom situations involving pupil behavior are handled on the basis of the immediate, often emotional, almost certainly uninformed judgment of the teacher. Honest and sincere as the teacher may be in diagnosing a situation she is sure to do damage to learning and to personality if uninformed on technical factors affecting the teaching-learning situation. Clearly the attitude of the teacher toward pupil behavior and personality traits will have definite effects upon her teaching procedures and upon her reaction to classroom incidents. In addition, there are important repercussions on the mental hygiene of the pupil which in turn affects learning. There will even be very important effects upon the teacher's own mental hygiene.

The teacher who emphasizes "order" or discipline in a room, placing a premium on quietness, docility, and obedience, is certain to antagonize those pupils who are naturally curious, spontaneous, and creative. Definite inhibitions to learning and disturbances to personality will result from the failure to understand. The same pupil placed with a teacher who values these same personality traits, who understands that some irregularity will attend spontaneous expression, will grow and learn as he cannot in the first room. This discussion must not be interpreted as reason for doing away with reasonable order and regularity in school affairs. The place and basis of order and discipline will be analyzed later in the chapter.

The cheerful side of this situation is found in a number of follow-up studies made by other students.⁸ It has been clearly shown that if definite attention is given to training teachers in the recognition of significant behavior patterns no matter how subtle, the teachers so trained can meet the problem satisfactorily

A PARTIAL LIST OF BEHAVIOR PROBLEMS WITH RATINGS BY MENTAL HYGIENISTS
AND TWO GROUPS OF TEACHERS *

<i>Behavior</i>	<i>Mental Hygienists</i>	<i>Denver Teachers</i>	<i>Wickman's Teachers</i>
Unsocial, withdrawing	1	8	40
Suspicious	2	32	37
Unhappy, depressed	3	7	22
Resentfulness	4	17	29
Fearfulness	5	24	36
Cruelty, bullying	6	5	8
Easily discouraged	7	14	23
Suggestible	8	10	28
Overcritical of others	9	29	45
Sensitiveness	10	26	48
Stealing	13	1	2
Unreliableness	21	3	12
Truancy	22	27	6
Untruthfulness	23	4	5
Cheating	24	6	9
Heterosexual activity	25	2	1
Obscene notes, talks, pictures	28	12	4
Impertinence, defiance	37	16	7
Masturbation	41	9	3
Destroying school materials	45	13	10

* D. B. Ellis, and L. W. Miller, "Teachers Attitudes and Child Behavior Problems," *Journal of Educational Psychology*, Vol. 27 (October, 1936), pp. 501-511.

The adjustment of individuals is evidently furthered through the satisfaction of certain basic needs, desires, urges. There is not as yet complete agreement on a listing of these needs, nor upon pupil be-

⁸ J. Murray Lee, and Doris M. Lee, *The Child and His Curriculum* (New York, D. Appleton-Century Co., 1940), p. 79.

haviors which satisfy them. Many of the behaviors which disturb teachers are clearly normal, whereas others which attract little attention are often evidences of maladjustment. An extensive analysis of the school's responsibility for meeting these needs and for attention to personality adjustments and disturbances is found in Prescott's stimulating book, *Emotion and the Educative Process*.⁹

Pupil responsibility for good behavior. The foregoing analysis of conduct seems to assess responsibility to everyone and anything except the pupil himself. But, just as in the case of failure to learn, definite responsibility rests upon the pupil. He will achieve that responsibility, however, just as he does all other responsibilities—through educative experiences that are sensible to him and which develop within him the proper understandings and attitudes, with accompanying habits and skills. Pupils do not learn responsibility for conduct through undergoing bullying, through enduring sarcasm, through suffering harsh punishment, through the inflexible enforcement of rules and regulations. They learn responsibility for conduct through being shown the reasons for good conduct, through being treated as honest, sincere individuals who will cooperate if given a chance, and through being given increasing opportunity for exercising decision and self-control.

Pupils with developed antagonisms and anti-social attitudes, with habitual misbehavior patterns need special treatment. Many pupils will not respond to constructive control. It is quite true that many pupils arrive at a given grade with defiant attitudes and habits of misconduct which are highly undesirable. A long life history lies back of each such case. These will not respond to the ordinary procedures of positive, remedial, or preventive discipline. These are the cases which cause the "practical" teacher to reject all sound theory and to handle all cases by the harsh method of corrective discipline. Principles for dealing with these cases are included in later pages.

General inclusive principles. We may move now toward general principles and specific activities. The broad, general principles should include the following:

1. *The teacher's general aim in the maintenance of order with special reference to the group should be the development within the group of a social conscience and group cooperation.*

Discipline is not a matter between the teacher and a pupil but between the pupil and his social group. An interested group resents interruption and disorder and will usually control a trouble-maker through social disapproval, open criticism, and sometimes through overt action.

2. *The teacher's general aim in the maintenance of order with special reference to the individual should be the achievement by the individual*

⁹ Daniel A. Prescott, *Emotion and the Educative Process* (Washington, D. C., American Council on Education, 1938).

of social ideals, attitudes, and habits which make possible self-control and responsibility.

3. *Public opinion within the group is, in the last analysis, the determiner of the level of behavior.*

4. *Group and individual standards are far more effective than imposed rules and regulations.*

5. *The development of group and individual standards should be recognized as a long slow process of social growth.*

6. *The standards already operative in the group must be recognized and taken into account.*

Growth will begin with intelligent self-criticism by the group, rather than with the imposition of rules and patterns of conduct. The long slow process of developing new standards is preferable to peremptory demands that existing standards be forgotten. Home and community standards which are low, with resultant effect upon school life, can be improved only through a patient and tactful long-range program.

7. *The personality of the pupil must be respected, whether the situation is a simple one of redirecting activity or a serious one of formal punishment.*

This does not mean, as superficial critics sometimes state, that the pupil is to run wild, to express himself in disregard of group standards. It does mean that the pupil is not ever to be disciplined for the sake of comfort and quiet for adults. It does mean that correction is to be directed at the underlying cause and not at the embarrassment of, or revenge upon, the individual. It means that initial means used will be frank and honest requests for explanation from the pupil, equally honest explanations of reasons for changed behavior. Authority and punishment should not be used until the pupil has demonstrated that he is not entitled to respect and to the more rational means that accompany respect.

8. *The personality of the teacher is an important factor which must be used with care.*

Teachers with certain personality traits can maintain order with ease by taking advantage of youthful hero-worship and loyalty. This is legitimate if desirable attitudes and habits result. It is highly undesirable if the control is so highly personalized that no lasting results are achieved.

Teachers often ask if they too are not to be respected; if the pupil personality is always to be respected. Certainly, but there is a significant difference. The child is immature and helpless in the control of the adult. The adult must be sure that developing personalities are not repressed or frustrated. The public makes much fun of "personality

development," "repressed," and the like. "Spank it out of them," says the public. The psychologist does not make fun of this because he knows misbehavior is not spanked out but spanked in. Controls must be exercised, to be sure, as has been explained in several previous chapters, but in such manner as to beget growth. The adult, on the other hand, will endeavor to secure the respect and confidence of pupils through excellent teaching, cheerful assistance with difficulties, impartial management of behavior incidents, etc. One of the most tragic misfits in the profession is the teacher who constantly demands of the principal or superintendent that, "You must make (force) the children (to) respect me. I cannot teach them until they do." Pupils quickly and accurately recognize the teacher personalities entitled to respect and give this respect freely.

9. *The clinical view should dominate at all times.*

The causes of practically all types of behavior are determinable by diagnosis, given time, technical knowledge, and skill. Specialists may have to be called in on difficult cases. Details were presented in Chapter 18. The whipping boys of "bad heredity," or "evil nature," should be eliminated from teachers' thinking. Children are not born with evil tendencies but develop them through contact with certain types of adults and in certain environments. Teachers will also progressively abandon the view that disciplinary incidents are personal affronts, perpetrated for their annoyance only. The teacher will be as impartial and objective as humanly possible.

Causes of misbehavior are sometimes beyond the control of the pupil. It is worse than useless to reprimand and punish for behavior the cause of which is beyond the control of the individual.

10. *Punishment and authoritarian control will be necessary in a limited number of cases.*

In all rooms (including the primary, but more seriously in upper levels) pupils will appear who have developed definite attitudes of antagonism and non-coöperation. Their conduct is openly and regularly anti-social. They are defiant of controls and punishments. These attitudes are of long standing and have been built up through home, and neighborhood, and, often, school experiences. A life history of unhappy home life will usually be found, hostility within the home and neighborhood, violence toward the child, resulting in anxieties which in turn produce aggressions.

11. *The final outcome desired is always understanding and responsibility resulting in changed behavior. The desired outcome is not outward conformity with and control by rules.*

General procedures in the development of self-control. Many of the incidents catalogued a few pages earlier are easily controlled by simple

common-sense management of the total school situation, by the exercise of ordinary good judgment, by the manifestation of certain desirable personality traits.

1. Provide a desirable learning situation which is adapted to the pupil needs and maturity.
 - a. Provide a good modern curriculum and teaching method which invite the pupil into many diverse learning activities.
 - b. Provide an attractive physical setting for learning.
 - c. Adjust all details of materials and activities to the individual differences in need, ability, and social maturity. Pupils cannot learn what they cannot learn and will turn to other activities if school activities are not sensible to them.
 - d. Provide challenge, however, within this adjustment to ability and experience. Too easy tasks antagonize as do too difficult ones. Challenging ones invite vigorous effort which precludes opportunity for disorder. (This was discussed in detail in Chapter 4.)
 - e. Provide for recognition for success in these challenging tasks. Invite pupil participation in evaluating.
 - f. Utilize a wide variety of teaching techniques and devices.
 - g. Invite pupil participation in planning the development of learning situations. (A dozen specific points were listed in Chapter 10.)
 - h. Provide, wherever possible, new-type furniture especially in the lower grades.

The formal, meaningless curriculum of the traditional school is an invitation to inattention and incipient disorder. The dull, drab rooms and buildings do not invite interest, attention, or feeling of loyalty. The routine recitation of meaningless materials is recognized as silly by bright pupils who do not dare say so but whose energies are inevitably directed elsewhere and eventually into mischief. The pupil is then blamed for disorder, for poor discipline, even for serious misdemeanor when the fault lies squarely with the poor curriculum and teaching method, with a school atmosphere which does not invite cooperation. The wonder really is that more serious revolts do not occur. The high-school pupil, sadly enough, has learned excellent techniques of sitting idly by and keeping reasonably quiet while the meaningless mumbo-jumbo of poor teaching goes on. The vigorous, hair-trigger attention and participation in well-taught classes are in happy contrast.

Traditional teachers often say, mistakenly, that pupils should be forced to pay attention, forced to maintain order while being taught. These same adults themselves refuse to pay any attention to materials and activities in life which do not concern them.

2. Provide supplementary activities and materials, particularly reading materials and construction projects related to the assignment or unit. Take advantage of all related extra-curricular activities.
3. Mechanize all routine factors which are susceptible to mechanization.
4. Invite the cooperative participation of pupils in all phases of the learning situation including the maintenance of order.

5. Maintain a friendly, informal, approachable, but organized, business-like manner at all times.
6. Maintain a positive and constructive attitude. Use "do" in place of "don't." Give the pupil experience with and practice in the desirable conduct patterns.

The teacher who is organized and knows what she is doing and acts as if she did makes a favorable impression which invites attention and co-operation; she secures pupil participation easily.

7. Develop criteria for determining which incidents may be safely ignored, which may be corrected informally and in a moment, which show a need for more organized guidance, and which mean that the pupil needs to be segregated for punishment.

The old-fashioned "practical" teacher creates much of the disorder in her room by her hard-boiled comments upon and punishments for anything and everything which happens in the room. Children full of energy are not going to sit still and refrain from communication no matter what the punishments. Good teaching and routines will eliminate all but a minimum of disorder. Whispering, minor horseplay, dropping of books, and the like will go on under the best conditions. Parents and teachers who believe that children can be forced to be otherwise should note that no one has ever accomplished it in several thousand years. The harsh and brutal schools of yesteryear completely failed. The modern school with a meaningful program accepts and utilizes this surplus energy. The school must accept childhood and youth as it is and progressively develop controls and responsibility in keeping with developing maturity.

Judgment will come only through analyzed experience. Little help can be given the beginning teacher other than the summaries and cautions such as are found throughout this book and others like it. The overt actions are but symptoms. Treating these will not help the pupil, nor materially better the classroom situation. Many innocent incidents may pass without comment. Teachers are often advised to let nothing pass for fear minor incidents grow into major difficulties later. The teacher must learn to use judgment in determining which items are to be ignored and which require guidance. Many items can be settled with a nod, a quiet word, an inquiring look. Courteous and sympathetically given explanations will care for many individual cases. Sometimes a calm but firm statement from the teacher may be necessary. Public reprimands are practically never effective, whereas individual conferences can be very effective. Open class discussion will care for still other problems. Methods should attempt to utilize class opinion, not antagonize it. In any event, sarcasm, ill-bred personal criticisms, displays of temper or annoyance are to be avoided. Loss of personal control by the teacher is fatal to her control of the pupils in the future.

8. Corrective discipline is necessary to supplement constructive guidance.
 - a. Establish guilt beyond peradventure of doubt before deciding that a case needs formal punishment.
 - b. Determine the cause or causes as clearly as can be determined.
 - c. Consider attendant circumstances and the total situation within which the misdemeanor occurred. Punishment must be adjusted to the individual and to the given situation. Fixed schedules of punishment are undesirable.
 - d. Try to make the punishment a natural result of the misdemeanor.
 - e. Select punishment for its effect upon the cause and upon the development of desirable attitudes and habits and not for vindictive reasons. Punishments should not humiliate or cause suffering unrelated to the natural consequences of the act.
 - f. Give the offender every opportunity to see the reasonableness of the action taken. Let him "meditate" or think things over before any discussion is held.
 - g. Avoid perversions of typical school work as punishments, i.e. copying poetry, doing extra arithmetic problems, writing sentences over and over, etc. This attaches dislike to items which pupils should learn to like as aids to normal learning. Suspension and expulsion are administrative devices and should be used only in extreme cases, since they curtail educational opportunity.
 - h. Isolate the offender from normal contacts and take away privileges until case is settled.
 - i. Determine punishment unhurriedly but close enough to the event to be effective. This provides for calm analysis, allows tempers to cool but ensures connection in the pupil's mind between offense and inevitable result.
 - j. Be frank and sympathetic but firm and business-like.
 - k. Do not force apologies. Apologies under duress are worse than useless, since the pupil's inner attitude of antagonism and revolt is strengthened. Apologies may be regarded as an easy out and given with glib insincerity. Even worse, forcing apologies indicates that the teacher is making it personal and is displaying some immaturity. Voluntary apologies to the social group are effective.
 - l. Do not publicize any aspect of the case. When it is over, forget it.
 - m. Judge punishments solely by the effect upon the convictions, attitudes, and behavior of the pupil, never by the satisfaction or comfort of the teacher.

Corrective discipline should be applied only to cases which are persistently defiant, truly disruptive of the orderly work of the group, and indicative of genuinely wrong attitudes and habits on the part of the offender. Do not make mountains out of molehills. Teachers would do better to lean backwards and give the benefit of the doubt even at minor discomfort than to apply authoritarian methods too soon. Once the necessity for corrective control and punishment is clear, however, no one should hesitate to act. Parents and teachers should never under any circumstances state that punishment is going to be applied and then fail to apply it. Once committed to action, they must make that action follow without fail. Firmness and consistency are essential to the success of corrective discipline. This is especially true with little children.

The educative effect of punishment. The general public and the untrained teacher do not as yet agree with psychologists, psychiatrists, anthropologists, and historians about the effectiveness of punishment. This is merely one of the "growing pains of democracy." Public opinion on technological matters is usually far behind the facts. The legitimate uses of punishment have been set forth even if too briefly. Since punishment is widely regarded as effective in any and all situations, the following brief summary is presented. Ample reading materials are available to give it validity.

1. *Punishment has a history of ineffectiveness and futility covering several thousand years.*

The reading on this is extremely interesting. A semi-popular volume of interest to any lay citizen is Barnes' *The Story of Punishment*.¹⁰ A specialized monograph is Falk's *Corporal Punishment: A Social Interpretation of Its Theory and Practice in the Schools of the United States*.¹¹ Books on modern criminology usually have a chapter on discipline and punishment, for instance, Sutherland's *Principles of Criminology*.¹² These three are but illustrative samples from a large literature. Nothing that is said negates the value of punishment properly applied in the cases and under conditions necessitating it.

2. *Punishment, with the exceptions noted throughout this chapter and volume, is detrimental to the development of democratic views and truly democratic discipline.*
3. *The dominating tendencies and the aggression manifested by many persons in applying punishment indicate that these persons are slightly or considerably neurotic.*

These persons are suffering from insecurities, anxieties, and fears which drive them to aggressive behavior, to acts which feed their ego. This is clear to trained observers, and even bright children from good homes recognize that something is wrong with the teacher's personality. The literature on this is so large that sampling would be a waste of time. Volumes are available on various phases of psychotherapy and counseling, on psychiatric diagnosis and case work, on clinical psychology, on mental hygiene, on delinquency and crime.

4. *The methods of authority, of dominance and aggression, of hostility, and of violence are rapidly learned by children on whom they are exercised.*

This is one of the real tragedies of the mistaken views of punishment. Children who know nothing but violence and pain as methods of con-

¹⁰ Boston, The Stratford Company, 1930.

¹¹ New York, Teachers College, Bureau of Publications, 1941.

¹² Philadelphia, J. B. Lippincott Co., 1939.

trol turn unhesitatingly to these same methods when they want to control a situation. Children from homes in which there is hostility between parents, between parents and children, where authority is arbitrary, where punishment is frequent and severe, are notoriously neurotic, hostile, and arbitrary themselves. Hostility to unkind parents is transferred by primary children to their first teachers. The teacher is another adult and can be expected to act as the adults the child knows, the process of reasoning will run.¹³

Modern educators are often laughed at, erroneously as it happens, for supposed opposition to any and all spanking. Parents often ask indignantly, "Is a child *never* to be spanked?" Certainly children will occasionally need to be spanked—but far more infrequently than adults think and not for the reasons adults give. A very simple principle is involved: a child may be spanked when he himself thoroughly well knows he ought to be spanked. And make no mistake, children know! Children who commit misdemeanors which they well know are forbidden and for which they have been given sensible reasons for the prohibition, who persist in behavior which they well know is detrimental and disapproved by their own age group, who for no good reason do things which they and every one else has agreed are not to be done, may sometimes need spanking. Honest diagnosis should precede any action. Spanking children who do not know why they are punished, or who do not know that the given behavior is punishable, or who do not see that the misdemeanor merits the punishment is definitely and demonstrably detrimental in several ways. Spanking babies and very little children, jerking them around, slapping them for acts which are wholly natural to the children but annoying to adults, is genuinely stupid. Most spankings are administered by angry or annoyed adults, by honest but uninformed adults. The adults are greatly benefited but not the children. Fortunately, many competent parents everywhere are rearing thoroughly well behaved children without resort to spanking or to harshly repressive measures. This can be done by any one of mental maturity who will inform himself. Mastery of the principles of child rearing takes somewhat longer than to master the principles of bidding in bridge but the results are worth it. In any event, whatever procedures are used, reasonableness and consistency are the keywords.

5. *Reliance on punishment and upon strong-arm methods is wasteful and truly stupid when methods are available which are demonstrably more effective.*

The more effective methods do not include "coddling the criminal," "soft discipline," "letting Willie express himself." The effective methods are patient, careful diagnosis, honest search for subtle causes, pressures

¹³ A small number of very enlightening research studies are now available on point 4. Class reports will be very worth while.

and other motivations, honest effort to make punishment fit the individual and the circumstance, patient and continuous effort to develop understandings, attitudes, habits, growth toward intelligent self-control. It is much easier to "give them a thrashing" than to find out why shy children manifest stubborn impertinence upon occasions. "Slapping them down" is much easier than patiently untangling frightened, near-neurotic children and nursing them back to normality.

The reasons for the backwardness in human thinking about punishment are clear to any student of human evolution, to any one who reads the history of civilization, to any one who knows the history of control by church and state. Many relics of bygone views still remain. Convictions based upon gossip and repetition of clichés persist despite voluminous data to the contrary. Most important of all, the naïve individual does not distinguish between the effect of punishment on the child and the effect on the adult administering it. Tensions are relieved within the adult; irritations and annoyances are reduced. The adult complacently feels that "it is for the child's good"; "This hurts me worse than it does you." The neighbors agree. The proper thing has been done. The effects on adults of punishing children are often excellent! The effects upon the child are often completely unknown. Fortunately, human thinking is slowly moving away from the harsh conceptions of punishment toward those which are based on the valid results of careful research, upon better religious views, upon better understandings of personality. Character education and educating for democracy are more important than enforcing conformance to external controls.

The mistakes made by parents and teachers in disciplining children, and by employers in managing employees grow out of a natural blunder in logic. *Control* is confused with *knowledge*.¹⁴ Parents think they *know* how to rear children because they can *control* children, can reward or punish them, can "discipline" them. Teachers think they *understand* human behavior merely because they can *control* it, can pass or fail, reward or punish pupils. Employers believe they "*know* how to handle labor" merely because they have *power* to hire and fire, that is, control, labor. Many Southerners say of the Negro, "We know how to handle them," failing to see that all they have is control. Parents, teachers, and others in authority over persons admit freely that they are ignorant of physics and chemistry but do not see that this admission is because they cannot control the behavior of the molecules or of physical forces.

School authorities are helpless for the moment if public opinion is against modern methods. School authorities have a responsibility for leadership, however. In the meantime, they must operate within the standards of the community, but long-range programs of competent education of the public should be undertaken.

¹⁴ F. Alexander Magoun, *Balanced Personality* (New York, Harper and Bros., 1943). Contains interesting elaboration of this idea.

EXERCISES AND REPORTS

1. Report with critical analysis incidents from home or school showing:
 - a. Skilful diagnosis and treatment of a disciplinary situation
 - b. Ignorant and bungling handling of a situation
2. Report research studies on any phase, particularly those subtle phases of personality maladjustment.
3. Report with critical analysis any popular discussions appearing in the general periodicals.
4. Report with critical analysis one or several articles dealing with school discipline procedures appearing in educational magazines.
5. If available, study Exercises 12 and 13, pages 67-68 in Schorling's *Student Teaching*. Be prepared to present answers for class analysis.

READINGS

Specialized references upon punishment, aggression and frustration, psychotherapy, etc. This sampling is almost trivial in the light of the material available but suffices to illustrate the type.

AICHORN, August, *Wayward Youth* (New York, Viking Press, 1935). This volume is a classic in the field.

ALEXANDER, FRANZ, and HEALEY, William, *Roots of Crime* (New York, Alfred A. Knopf, Inc., 1935).

British Information Service, *Juvenile Delinquency in Britain During the War*, I.D. 390 (New York, British Information Service, 1943).

—, *British Youth Activities in Wartime*, I.D. 339 (New York, British Information Service, 1943).

FRENCH, L. M., *Psychiatric Social Work* (New York, The Commonwealth Fund, 1940).

HILGARD, Ernest R. and MARQUIS, Donald G., *Conditioning and Learning* (New York, D. Appleton-Century Company, Inc., 1940).

LANDER, J., "Traumatic Factors in the Background of Delinquent Boys," *American Journal of Orthopsychology*, Vol. 11, 1941, pp. 150-156.

LOUTTIT, C. M., "Preventive Mental Hygiene in Childhood," *The Nervous Child*, Vol. 1, 1941, pp. 43-59.

ROGERS, C. R., *Counseling and Psychotherapy* (Boston, Houghton Mifflin Company, 1942).

—, *Clinical Treatment of the Problem Child* (Boston, Houghton Mifflin Company, 1939).

Social Case Work, Generic and Specific. Report of the Milford Conference (New York, American Association of Social Workers, 1929).

TOPPING, R., "Case Studies of Aggressive Delinquents," *American Journal of Orthopsychiatry*, Vol. 11, 1941, pp. 485-492.

General References to Classroom Procedure

BOSSING, Nelson, *Teaching in Secondary Schools* (Boston, Houghton Mifflin Company, 1935), Chap. 6.

BREED, F. S., *Classroom Organization and Management* (Yonkers-on-Hudson, N. Y., The World Book Company, 1933), Chap. 17.

HARRIS, Pickens, *Changing Conceptions of School Discipline* (New York, The Macmillan Company, 1928). Basic historic résumé.

HOCKETT, J. A., and JACOBSEN, E. W., *Modern Practices in the Elementary School* (Boston, Ginn and Company, 1938, revised 1943), Chap. 7. Excellent.

- MELVIN, A. G., *The Technique of Progressive Teaching* (New York, The John Day Company, 1934), pp. 195-209.
- PRINGLE, R. W., *The Psychology of High School Discipline* (Boston, D. C. Heath and Company, 1935).
- REINOEHL, C. M., and AYER, F. C., *Classroom Administration and Pupil Adjustment* (New York, D. Appleton-Century Company, Inc., 1940), Chaps. 18 and 19.
- SCHORLING, Raleigh, *Student Teaching* (New York, McGraw-Hill Book Company, Inc., 1940). Chap. 3. Excellent.
- SMITH, Walter R., *Constructive School Discipline* (New York, American Book Company, 1936).
- ZACHRY, Caroline, *Personality Adjustment of School Children* (New York, Charles Scribner's Sons, 1929).

Problem Cases and Mental Hygiene

An extensive literature is available. A general course such as this will not give special treatment beyond that already contained in previous chapters. Instructors may organize special reports here if desired. Separate courses are available in many institutions.

Periodical Literature

The periodical literature is especially rich in articles on discipline, punishment, control. These vary all the way from the purely nonsensical to the carefully validated research studies. Special reports may be made.

Childhood Education devoted its issues for 1943-1944 to the general topic, "Discipline." Broadly interpreted and contains many valuable articles.

APPENDICES

APPENDIX A

REFERENCES ON CATHOLIC EDUCATION

- COMMINS, W. D., *Principles of Educational Psychology* (New York, The Ronald Press Company, 1937).
- REDDEN, John D., and RYAN, Francis A., *A Catholic Philosophy of Education* (Milwaukee, Wis., The Bruce Publishing Company, 1942). This is by far the most extensive and detailed recent text. Exposition of Catholic principles with applications to educational practice is clear and explicit.
- ROCHE, Patrick J., *Democracy in the Light of Four Current Educational Philosophies* (Washington, D. C., The Catholic University of America Press, 1942). A specialized monograph exceptionally well done. One of the best statements of Catholic philosophy and educational principle available. Better for advanced students.
- MCGUCKEN, William J., *The Catholic Way in Education* (Milwaukee, Wis., The Bruce Publishing Company, 1934). Simple and brief, and by no means comparable in adequacy to the Redden reference.

The basic principles of Catholicism are naturally the same in these and all other volumes since the principles do not change. Differences of opinion are apparent on a number of non-fundamental items, and this is also natural. Catholic students should examine these differences with great care since they are significant for their own educational practice.

The treatment of "modern psychology" in McGucken is not at all in line with treatment of the same area by Commins. Commins, and Redden, and Ryan treat the scientific movement in education much more sympathetically than does McGucken. Commins is able to present a discussion of the nature of the learner which is quite acceptable to any psychologist or educator without running afoul of the "body-soul" controversy which confuses so much educational discussion. Commins presents principles of learning which are quite acceptable to "modern" or "progressive" teachers. Redden and Ryan condemn "progressive" education most severely. Their account of "progressive education" is so inaccurate factually, not to mention legitimate differences of opinion in interpretation, that bias or prejudice could be charged were it not for the obvious sincerity and earnestness of the writers. It is at this point that Catholic students should exercise greatest care. Catholic writers and educational authorities generally condemn modern or progressive methods. These very methods are being expertly used, however, by large numbers of Catholic teachers in public schools and by an appreciable number of nuns in parochial schools. Many students and teachers whose loyalty to Catholic principles is unquestioned state that it is wholly possible to use the very best modern methods without compromising basic principles in the slightest.

APPENDIX B

BRIEF SUMMARY ON THE USE OF INSTRUCTIONAL AIDS AND MATERIALS FOR STUDENTS LACKING OTHER CONTACTS

The kinds of instructional aids available. The wealth of materials now in use in good school systems may be roughly classified as follows:

- Books, periodicals, bulletins, pamphlets
- Pictures (photographs of persons, places, processes, reproductions of masterpieces of art)
- Motion pictures, with and without sound
- Lantern slides and still films
- Charts, diagrams, graphs
- Cartoons
- Maps and globes (relief, product and industry, population, rainfall maps and many other special-purpose maps in addition to typical physical-political ones)
- Phonograph records
- Exhibits (specimens of fauna and flora, models of machinery or places, industrial and natural products)
- Posters
- Museum collections
- Radio presentations
- Stereographs

Each of these classifications contains from two or three to scores of sub-groupings. The number of actual materials is almost limitless. Certain apparatus is required:

- Motion picture projectors and screens
- Sound projectors
- Phonographs
- Radios
- Blackboards
- Bulletin boards
- Sand tables
- Museum rooms and exhibit cases

Sources of free and inexpensive material. A very large amount of material may be secured by teachers at little or no cost. These items range from ordinary printed materials, such as pictures, posters, and booklets, up to expensive and extensive exhibits or commercial products, models, machinery, etc. Chief listings are:

Commercially Published Bulletins

Free and Inexpensive Educational Materials, Including Sources of Visual Aids. Special Report No. 17. The Quarrie Reference Library, Chicago, Ill. 35 East Wacker Drive. Constantly revised.

Sources of Free and Inexpensive Teaching Aids. Bruce Miller, Box 222, Ontario, California. Constantly supplemented.

University Publications

Free and Inexpensive Materials. This is an annotated bibliography of bibliographies, of courses of pamphlets, and other teaching aids. Hugh B. Wood. Coöperative Store, University of Oregon, Eugene, Oregon. Curriculum Bulletin No. 4, Sept. 1, 1940.

Enrichment Materials for Teachers. Robert di Kiefer, Service Bulletin No. 7, Northwestern University, Evanston, Ill., May, 1941.

Materials for the Classroom. University of Florida Curriculum Laboratory, Gainesville, Florida.

Free and Inexpensive Learning Materials. George Peabody College for Teachers, Nashville, Tenn.

List of Free Materials. Georgia State Teachers College.

Other similar lists are available from various universities and from some of the state departments of education. The catalogues of audio-visual and other materials published by large city school systems are useful to teachers in other systems in that they supply guidance as to the types of material to look for.

*Government Bulletins*¹

New Government Aids for Teachers. Appears in *School Life* from September, 1937 to June, 1940, but is available in pamphlet form as a reprint. United States Office of Education.

One Dollar or Less Inexpensive Books for School Libraries. United States Office of Education, Pamphlet, No. 88, 1940.

Many of the recently published bibliographies for various school subjects, especially those published in connection with the high-school courses in aviation, contain lists of specialized material which is inexpensive or free.

Criteria for the use of instructional aids. The first and all-inclusive principle has been stated several times: instructional aids are to give pupils vicarious experiences useful to their purposes, when the real experiences are outside the pupils' immediate environment.

1. *A given instructional aid should be chosen to serve a direct need of the learner as that need appears in the on-going series of learning activities.*

Aids and materials are not used merely because they are "interesting," "real," or "concrete," but because they explain or clarify a needed understanding, contribute to the development of an attitude, explain a motor or machine process. The next principle is equally important.

2. *Instructional aids should be chosen in terms of the pupils' maturity and experience, and in accord with individual differences within the group.*

Is the language used within the reading and speaking vocabularies of the learners?

¹ A sampling only. Others are available from a number of government departments

Is the material portrayed close enough to pupils' past experience to be readily assimilable?

Is the manner of presentation understandable to the pupils?

Is the material sufficiently comprehensive to secure varied responses thus enabling various types of children to react on their levels and in their own way?

Is there possibility of differentiation in the follow-up?

Is there possibility to continue growth along the lines already apparent at the given level of maturity?

3. *Instructional aids should be examined for accuracy and validity as well as for appropriateness to need and maturity.*

Is the material accurate and up to date?

Is it of desirable quality?

Is it acceptable under aesthetic as well as utilitarian standards?

Is it easily available?

4. *The use of given instructional aids should be carefully planned.*

The teacher should preview or otherwise examine the material in order to be sure that it fits the need which has arisen or which she plans to stimulate.

Teacher and pupils together should prepare themselves to use the materials intelligently in the light of the need which it is to serve.

A list of questions may be developed.

An outline of points to observe may be developed.

5. *The use of instructional aids should include a definitely planned follow-up.*

This may be through further discussion or analysis in the light of the questions or points to observe or through an evaluational device.

6. *Preference should be given to those supplementary materials which approach most closely the comparable direct experience.*

7. *Instructional aids should be chosen within reasonable limits in terms of cost.*

DISCUSSION QUESTIONS

1. Make a list of some of the new kinds of instructional materials found in modern schools that were not used twenty years ago. Fifty years ago.
 - a. Observe a room or rooms in any nearby coöperating elementary or secondary school and note the presence or absence of supplementary materials.
 - b. Make a few suggestions for materials which are easily available for a given subject and room observed in which few or none are used.
2. List some of the differences in the kinds of materials suitable for different levels of maturity.
3. Make a list of the visual aids, other instructional materials, and of the mechanical equipment available in the building in which you teach or observe. Confine the list to your subject field. Note differences from school to school as reported in class.
4. Describe and critically evaluate your own use of any audio-visual aids, particularly motion pictures. Students in training may report on the basis of observations. (This exercise implies a set of criteria, and these may be set up cooperatively in class or by committee prior to reporting.)
5. Maps are among the most carelessly evaluated and used instructional aids. Develop a check list of criteria and apply to the map equipment of a given room or department.

6. What improvements have been made in textbooks during your own teaching experience? During the past two or three decades? Be specific.
7. Select from the literature a check list for textbooks in your field. Apply it to one or two well known books and report. A score card may be cooperatively developed in class or by committee if desired.
8. Describe and explain text material which you have met which is "so difficult that it is of no use unless greatly amplified by the teacher."
9. What is meant by "unteachable material"?

APPENDIX C

THE HISTORICAL DEVELOPMENT OF PRINCIPLES OF TEACHING IN THE UNITED STATES

The following outline indicates in very brief form some of the chief leaders, movements, and influences which have affected principles and methods of teaching in the United States. The list of names and publications is by no means exhaustive. Details have been sacrificed for the sake of a compact overview.

LARGE MOVEMENTS	LEADERS	IMPORTANT DATES AND PUBLICATIONS
A <i>Importation from Europe</i>		
1. Pestalozzian	Sheldon	1860 Oswego Training School 1862 Circulars, courses, manuals, readers
2. Herbartian	De Garmo McMurry, C. A. McMurry, C. and F.	1887 <i>Essentials of Method</i> 1892 <i>Elements of Method</i> 1897 <i>Method of Recitation</i> 1892 Herbart Society 1895 <i>First Yearbook of Herbart Society</i>
3. Froebelian	Parker, Col. F. W. Dewey	1894 <i>Talks on Pedagogics</i> ; articles 1902 <i>The Educational Situation</i> 1902 <i>Child and the Curriculum</i> 1899 <i>School and Society</i> 1900 <i>Elementary School Record</i>
4. Spenceian	Dewey Bobbitt	1899 <i>School and Society</i> 1918 <i>The Curriculum</i>
B <i>Developments at Home</i>		
1. Philosophic method	Dewey	1895 <i>Ethical Principles</i> 1895 <i>Interest and Will</i> 1909 <i>Moral Principles in Education</i>
2. The biological point of view	James	1890 <i>Psychology</i> 1892 <i>Talks to Teachers</i>
3. Scientific method		
a. Statistical	Rice Thorndike	1897 Articles in <i>Forum</i> magazine 1904 <i>Education and Social Measurement</i> 1913 <i>Psychology of Learning</i> (Vol. 2)
	Binet-Simon Thorndike's students	1905 <i>Mental Test</i> 1908 —, <i>Scales and Tests</i>
b. Experimental	Judd and students	1917 —, <i>Monographs on reading, arithmetic, handwriting</i>
4. The emphasis upon individual differences	Harris Search Burk	1860 <i>Protests against waste of failing pupils</i> 1888 <i>Pueblo Plan</i> 1910 <i>San Francisco Normal School</i> 1913 <i>Lock-Step Schooling and a Remedy</i>

LARGE MOVEMENTS	LEADERS	IMPORTANT DATES AND PUBLICATIONS
	Washburne	1919 Winnetka experiment begins 1925 Burk's Individual System developed at Winnetka National Society for the Study of Education, <i>Twenty-fourth Yearbook</i> (1925), Part II
	Parkhurst	1922 <i>Education on the Dalton Plan</i>
5. Revolt of the radicals (the theory of freedom, coöperation, continuous, interactive, experiencing. Note later developments.)	(Froebelians, above)	
	Flexner	1917 <i>A Modern School</i>
		1917 Lincoln School founded
	Kilpatrick	1919 <i>Project Method</i>
		1925 <i>Foundations of Method</i>
	Lincoln School	1927 <i>Curriculum Making in an Elementary School</i>
	Rugg	1928 <i>Child-Centered School</i>
	Thayer	1928 <i>Passing of the Recitation</i>
6 Counter revolt of the conservatives: "stalwarts", "essentialists"	Bagley	1925 <i>Determinism in Education</i> 1929 Articles: proposes "stalwarts"
		1931 <i>Education, Crime, Social Progress</i>
		1938 Essentialists Committee
	Morrison	1926 <i>Practice of Teaching in Secondary School</i> (Revised 1931)
7. Emphasis upon "reorganization of experience"; "integration—individuation—reintegration"		
a. More extensive use of scientific method	Baltimore	1912 First city Bureau of Educational Research
	Newark	
	Rugg	1917 How to keep in touch with quantitative literature in education
	Institutions	1917 Published lists of theses 1920 Journal of Educational Research starts 1923 —, Surveys of research published
	Monroe et al.	1928 <i>Ten Years of Educational Research</i>
	American Educational Research Association	1931 Begins quarterly review of research Yearbooks, journals, etc
b. More critical use of philosophic method	Dewey	1913 <i>Interest and Effort</i> 1916 <i>Democracy and Education</i> 1938 <i>Experience and Education</i> and many others
	Kilpatrick	1926 <i>Education for Changing Civilization</i> 1932 <i>Education and the Social Crisis</i> 1935 <i>A Reconstructed Theory of the Educational Process</i>
	Bode	1937 <i>Democracy As a Way of Life</i> 1938 <i>Progressive Education at the Crossroads</i> and many others

LARGE MOVEMENTS	LEADERS	IMPORTANT DATES AND PUBLICATIONS
c. Great extension of biological point of view (research in biology, neurology, psychology, psychiatry)	James, above	1902 —, Articles
	Franz	1914 <i>Behavior: An Introduction to Comparative Psychology</i>
	Watson	1921 <i>Origin and Development of the Nervous System</i>
	Child	1924 <i>Physiological Foundations of Behavior</i>
	Jennings	1920 <i>Suggestions of Modern Science Concerning Education</i>
		1930 <i>Biological Basis of Human Behavior</i>
	Herrick	1922 <i>Introduction to Neurology</i>
		1927 <i>Neurological Foundations of Behavior</i>
	Lashley	1929 <i>Brain Mechanisms and Intelligence</i>
	Coghill	1929 <i>Anatomy and the Problem of Behavior</i>
	Pavlov	1928 <i>Conditioned Reflexes</i> (translation)
	Jacks	1931 <i>Education of the Whole Man</i>
	Wickman	1928 <i>Children's Behavior and Teacher Attitudes</i>
	Prescott	1938 <i>Relation of Emotion to Education Process</i>
	Kohler	1924 <i>The Mentality of Apes</i>
		1929 <i>Gestalt Psychology</i>
	Koffka	1925 <i>Growth of the Mind</i>
	Hartmann	1936 <i>Gestalt Psychology</i>
d. The Gestalt psychology	Biologists, neurologists, philosophers, psychologists, psychiatrists	} Various and extensive publications affect thinking about education and teaching.
e. The concept of integration	Rugg	
8. Revolutionary developments in evaluation of complex learning products	Hopkins et al	1936 <i>American Life and School Curriculum</i>
	Hopkins	1937 <i>Integration</i>
	Tyler and students at Ohio State University and later at University of Chicago and for Progressive Education Association	1940 <i>Interaction</i>
	American Educational Research Association	1930 —, Development of new type instruments; insistence on precise definition of outcomes
	Buros	1931 Begins quarterly review of research; includes chapters on evaluation
		1933 —, begins publication of biennial catalogue and commentary on tests
	Wrightstone	1935 <i>Appraisal of Newer Practices in Selected Public Schools</i>
		1936 <i>Appraisal of Experimental High School Practices</i>
		1938 <i>Appraisal of New Elementary School Practices</i>

LARGE MOVEMENTS	LEADERS	IMPORTANT DATES AND PUBLICATIONS
	Jarvic and Ellingson	1940 <i>A Handbook on the Anecdotal Behavior Record</i>
	Leonard and Eurich	1942 <i>An Evaluation of Modern Education</i>
	Progressive Education Association	1912 —, Five volumes on the Eight-Year Study
	Brueckner, Eurich, Pistor, Olson, and others	Various dates, research studies, articles, yearbook contributions
9. Growing emphasis on diagnosis of failure to learn, of personality difficulties; on guidance; on mental hygiene	This grows out of, and has accompanied, the foregoing items from the beginning. References are too numerous and extensive to reduce to a small list. Texts in respective fields contain ample background material.	
C. An Emerging, Coherent and Integrated Theory of Learning and Principles of Teaching Based Upon:		
1. Competent analyzed experience		
2. Biological facts concerning learning organism		
3. Experimental psychology and education		
4. Philosophic analyses of ends and means		
	Kilpatrick	1919 <i>The Project Method</i>
		1925 <i>Foundations of Method</i>
	Morrison	1926 <i>Practice of Teaching in Secondary Schools</i> (Revised 1931)
	Thayer	1928 <i>Passing of the Recitation</i>
	Burton	1929 <i>Nature and Direction of Learning</i>
		1934 <i>Introduction to Education</i> (Ch. 23 only)
	Wynne	1929 <i>General Method</i>
		1934 <i>The Learning-Teaching Unit</i>
		1937 <i>The Teacher and the Curriculum</i>
		1940 <i>The Educative Experience</i>
	Umstattd	1937 <i>Secondary School Teaching</i>
	Hockett and Jacobsen	1938 <i>Modern Practices in the Elementary School</i> (Revised 1942)
	Department of Supervisors and Directors	1939 <i>Twelfth Yearbook, Newer Instructional Practices of Promise</i>
	Lee and Lee	1940 <i>The Child and His Curriculum</i>
	Hopkins	1940 <i>Interaction</i>
	Macomber	1941 <i>Guiding Child Development in the Elementary School</i>
	Burton	1944 <i>The Guidance of Learning Activities</i>

The development of better and better methods of teaching through the continued clarification of principles of learning and teaching will continue. The foregoing references will be supplemented, and eventually superseded, by ever newer developments.

Educational psychologies which discuss current concepts of learning are available in great number but are not listed here because of space limitations and because these volumes are easily located in any library. Recent volumes on curriculum theory and development are also valuable here, since curriculum and method are inseparable.

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